ASSIGNMENT -5

Implement the sample program demonstrating the use of Servlet

Create a database table students_info (stud_id, stud_name, class, division, city) using database like Oracle/MySQL etc. and display (use SQL select query) the table content using JSP.
Note(Here code is provided for Rollno,Name,Address,Phone)

S/w Requirement: Eclipse editor

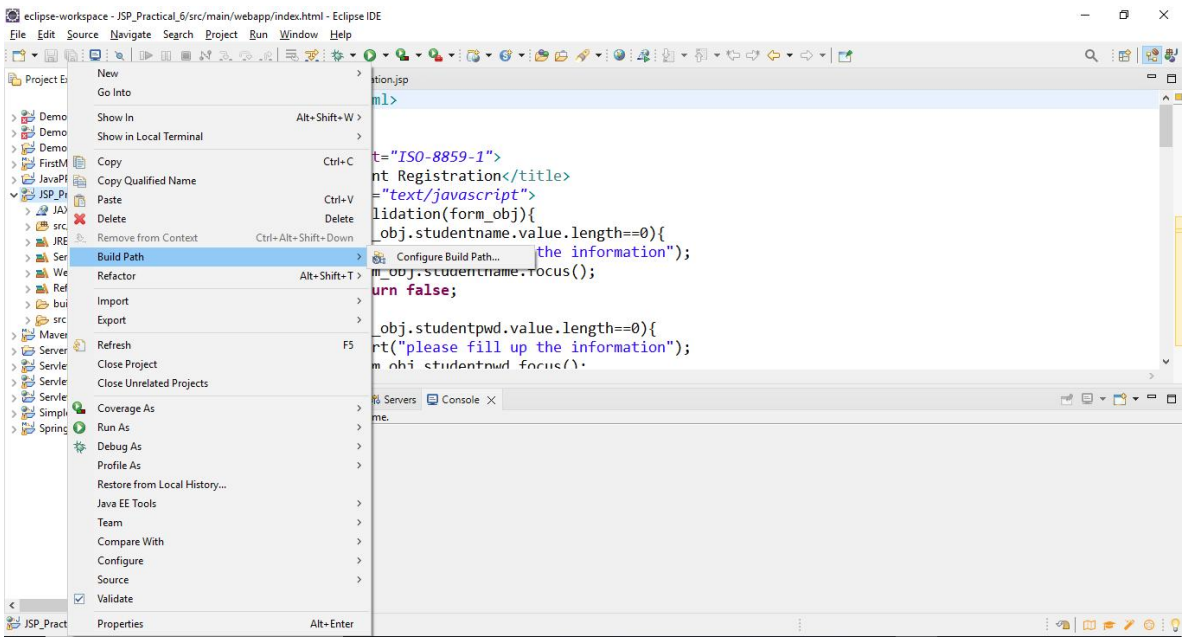
Server: Tomcat apache V10 (which is available in Eclipse editor)
Xampp server for Mysql and Apache (For Database)

External Jar file : mysql-connector-java-8.0.28
https://dev.mysql.com/downloads/connector/j/ download based on your OS

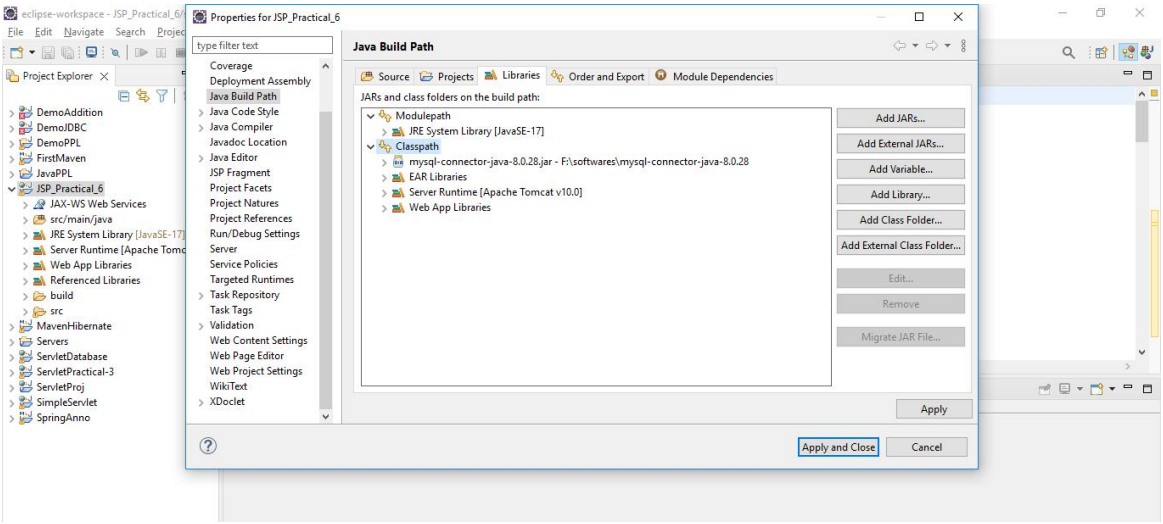
Step 1.

First, we'll start Eclipse and switch to the Java EE perspective.
https://www.javatpoint.com/creating-jsp-in-eclipse-ide follow these steps for creating dynamic we project

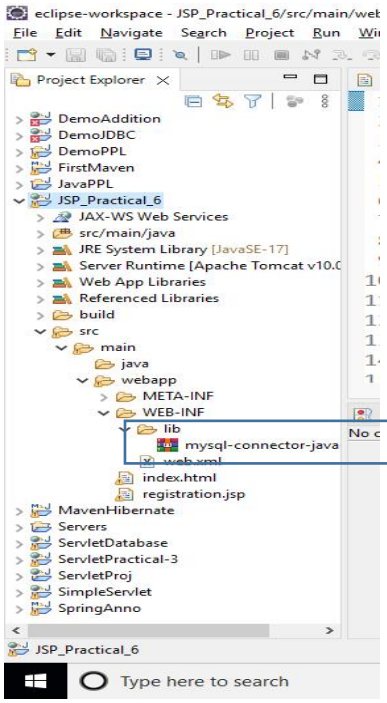
Step 2:
- ✓ Add jar file mysql-connector-java-8.0.28
- ✓ Right click on project ->build path->configure build path



- ✓ Click on classpath (given below)->Add external JARs->browse the path mysql-connector file -> apply -->apply and close



Note: if database connection fails then add mysql connector file in the following path of your project



Step 3: create Database_Demo.html file

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Database Connectivity</title>
  <style>
  .heading{
  float:top;
  width:100%;
  height:20%;
  background:#D293FD;
```

```
  }

.box{
   float:none;
   margin:auto;

   }

.clear{
   clear:both;
}
 button {
  background-color: #4CAF50;
  border: none;
  color: white;
  padding: 15px 32px;
  text-align: center;
  text-decoration: none;
  display: inline-block;
  font-size: 16px;
  margin: 4px 2px;
  cursor: pointer;
}

</style>
</head>
<body>

 <iframe class="heading" src="head.html" name="top_frame"></iframe>


 <div class="box">
  <iframe src="menu.html" frameborder="0" scrolling="no" width="50%" height="512" align="left"
name="left_frame"> </iframe>
</div>

<button onclick="history.back()" >Go Back</button>



</body>
</html>
```

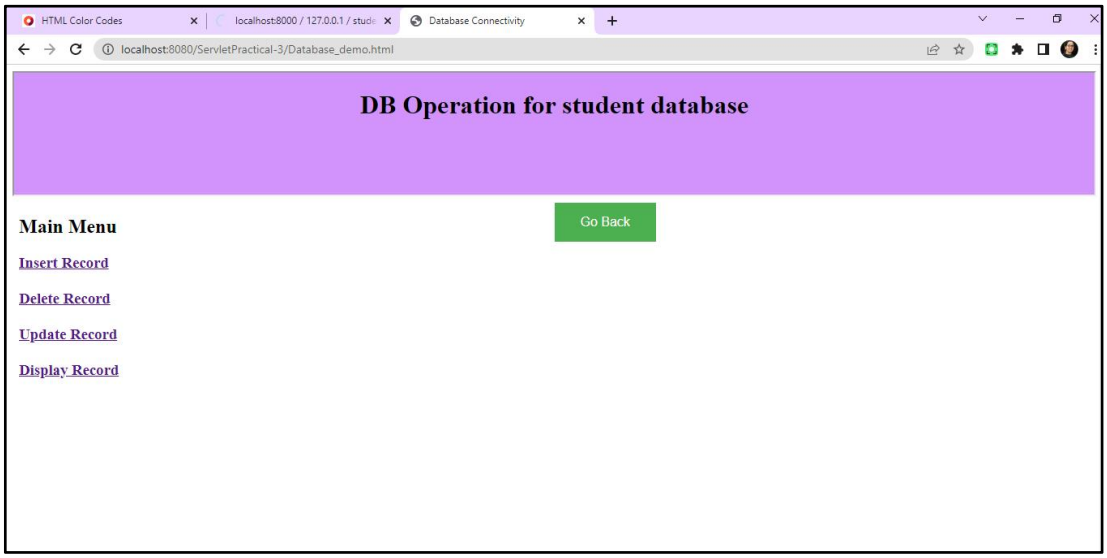
Step-4 menu.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title></title>
</head>
<body>
 <h2>Main Menu</h2>
 <h3>
   <a href="Insert_Data" target="left_frame">Insert Record</a><br><br>
   <a href="Delete_Data" target="left_frame">Delete Record</a><br><br>
   <a href="Update_Data" target="left_frame">Update Record</a><br><br>
   <a href="Display_Data"target="left_frame">Display Record</a><br><br>
```

```
 </h3>
</body>
</html>
```

Step-5: head.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>DB connectivity</title>
</head>
<body>
 <center> <strong> <h1>DB Operation for student database</h1></strong></center>
</body>
</html>
```

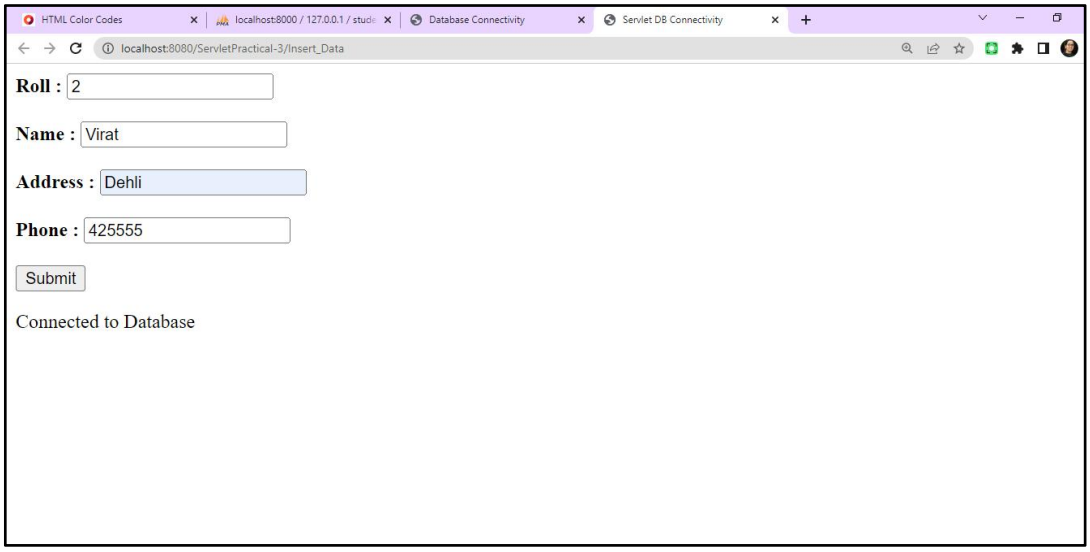


Step-6: Create Class Insert_Data.java (Note:Check the packages javax/jakarta)

```
import java.io.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;
import java.sql.*;
import java.util.*;

public class Insert_Data extends HttpServlet{
        public void doPost(HttpServletRequest req,HttpServletResponse res) throws IOException,
ServletException{

                res.setContentType("text/html");
                PrintWriter out=res.getWriter();
                out.println("<html><head><title>Servlet DB Connectivity</title><head>");
                out.println("<body></body></html>");
                Connection con=null;
                Statement stmt=null;

                ResultSet rs=null;
                String uname="root";
```

```
                String pwd="";
                String constr="jdbc:mysql://localhost:3306/students";
                 out.println("<html><body>");
                 out.println("<form action='Insert_Data' method='post'>");
                 out.println("<strong>Roll : </strong><input name='sroll' type='text'><br><br>");
                 out.println("<strong>Name : </strong><input name='sname' type='text'><br><br>");
                 out.println("<strong>Address : </strong><input name='saddr'
type='text'><br><br>");
                 out.println("<strong>Phone : </strong><input name='sphone'
type='text'><br><br>");
                 out.println("<input type='submit' value='Submit'>");
                 out.println("</form>");

                try {
                        Class.forName("com.mysql.cj.jdbc.Driver");
                        con=DriverManager.getConnection(constr,uname,pwd);
                        stmt=con.createStatement();
                        out.println("\n Connected to Database");

                        PreparedStatement st = con.prepareStatement("insert into student_tab
values(?, ?, ?,?)");
                        // Same for second parameter
                        st.setInt(1, Integer.valueOf(req.getParameter("sroll")));
                        st.setString(2, req.getParameter("sname"));
                        st.setString(3, req.getParameter("saddr"));
                        st.setString(4, req.getParameter("sphone"));

                        // Execute the insert command using executeUpdate()
                        // to make changes in database

                        st.executeUpdate();
                        // Close all the connections
                        st.close();
                        con.close();

                        // Get a writer pointer
                        // to display the successful result

                        out.println("<html><body><b>Successfully Inserted" +
"</b></body></html>");



                }catch(SQLException e) {
                        throw new ServletException("Servlet cannot display records",e);

                }
                catch(ClassNotFoundException e) {
                        throw new ServletException("JDBC Driver not found",e);
                }

                finally {
                        try {
                                if(rs!=null) {
                                        rs.close();
                                        rs=null;
                                }
                                if(stmt!=null) {
                                        stmt.close();
```

```
                                        stmt=null;
                                    }

                                    if(con!=null) {
                                        con.close();
                                        con=null;
                                    }
                                }catch(SQLException e)
                                {
                            }

                        }

                        out.close();
                }
                protected void doGet(HttpServletRequest req, HttpServletResponse resp)
                      throws ServletException, IOException {
                    doPost(req, resp);
}
}
```

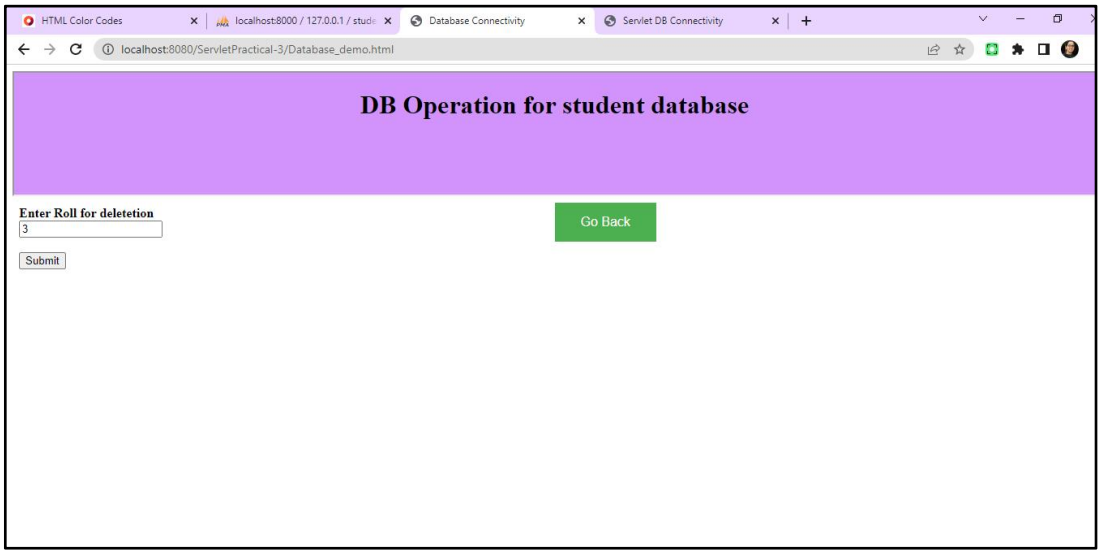


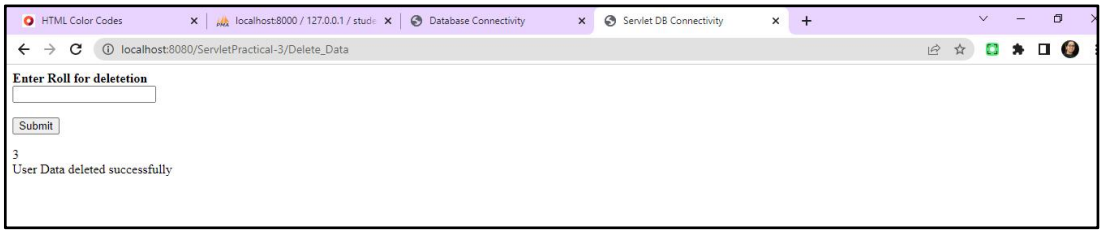
Step-7: Create Delete_Data.java class for deletion of record

```
import java.io.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;
import java.sql.*;
import java.util.*;

public class Delete_Data extends HttpServlet {
        public void doPost(HttpServletRequest req, HttpServletResponse res) throws IOException,
ServletException {

                res.setContentType("text/html");
                PrintWriter out = res.getWriter();
                out.println("<html><head><title>Servlet DB Connectivity</title><head>");
                out.println("<body></body></html>");
                Connection con = null;
```

```
		Statement stmt = null;
		boolean flag=false;

		ResultSet rs = null;
		String uname = "root";
		String pwd = "";
		String constr = "jdbc:mysql://localhost:3306/students";
		out.println("<html><body>");
		out.println("<form action='Delete_Data' method='post' target='right_frame'>");
		out.println("<strong>Enter Roll for deletetion </strong><br>");
		out.println("<input name='sroll' type='text'>");
		out.println("<br><br>");
		out.println("<input type='submit' name='Submit'>");
		out.println("</form></body></html>");

		try {
			Class.forName("com.mysql.cj.jdbc.Driver");
			con = DriverManager.getConnection(constr, uname, pwd);
			stmt = con.createStatement();
			//out.println("\n Connected to Database");
			String studroll = req.getParameter("sroll");



			int n = Integer.parseInt(studroll);
			//stmt.executeUpdate("delete from student_tab where Roll_no=" + n);
rs=stmt.executeQuery("select * from student_tab");
rs=stmt.getResultSet();
while(rs.next())

{
    int n1=rs.getInt(1);

     if(n==n1)
     {
        flag=true;
        stmt.executeUpdate("delete from student_tab where Roll_no='"+n+"'");
        break;
     }
}
if(flag==true)
  out.println(n+"<br> User Data deleted successfully");
else
  out.println("Sorry "+n+" user data is Not Available");




		}


		catch (SQLException e) {
			throw new ServletException("Servlet cannot display records", e);

		} catch (ClassNotFoundException e) {
			throw new ServletException("JDBC Driver not found", e);
		}

		finally {
			try {
```

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

                                        if (con != null) {
                                                con.close();
                                                con = null;
                                        }
                                } catch (SQLException e) {
                                }

                        }

                        out.close();
                }

                protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws
ServletException, IOException {
                        doPost(req, resp);
                }
}
```



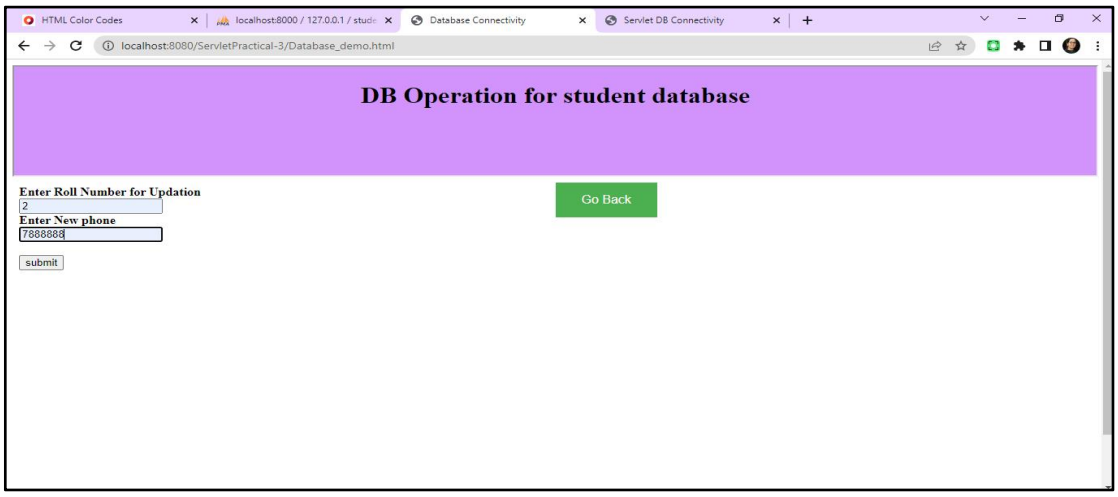


Step-8 :Create Update_data.java class for updating the record

```
import java.io.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;
```

```
import java.sql.*;
import java.util.*;



public class Update_Data extends HttpServlet{

                public void doPost(HttpServletRequest req, HttpServletResponse res) throws
IOException, ServletException {

                        res.setContentType("text/html");
                        PrintWriter out = res.getWriter();
                        out.println("<html><head><title>Servlet DB Connectivity</title><head>");
                        out.println("<body></body></html>");
                        Connection con = null;
                        Statement stmt = null;
                        boolean flag=false;

                        ResultSet rs = null;
                        String uname = "root";
                        String pwd = "";
                        String constr = "jdbc:mysql://localhost:3306/students";

                        try {
                                Class.forName("com.mysql.cj.jdbc.Driver");
                                con = DriverManager.getConnection(constr, uname, pwd);
                                stmt = con.createStatement();
                                //out.println("\n Connected to Database");
                                String studroll = req.getParameter("sroll");
                                if(studroll==null)
                                        studroll="0";
                                int n = Integer.parseInt(studroll);

                                String newsp=req.getParameter("newphone");



                                stmt.executeUpdate("update student_tab set phone="+newsp+"
where Roll_no='"+n+"'");
                                rs=stmt.executeQuery("select * from student_tab");

                                out.println("<html><body>");
                                out.println("<form action='Update_Data' method='post'>");

                                out.println("<strong>Enter Roll Number for
Updation</strong><br>");
                                out.println("<input type='text' name='sroll'>");
                                out.println("<br>");
                                out.println("<strong>Enter New phone</strong><br>");
                                out.println("<input type='text' name='newphone'>");
                                out.println("<br><br>");
                                out.println("<input type='submit' value='submit'>");
                                out.println("</form></body></html>");

                                /*if(true)
                                out.println("<b>You are successfully update</b>");*/
```

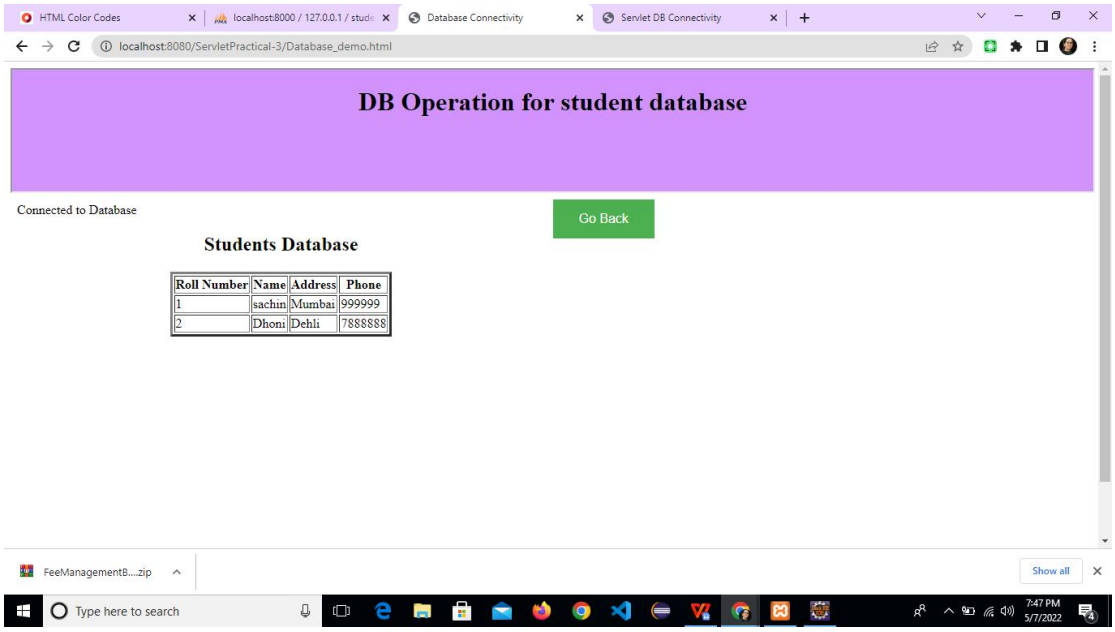
```
                }


                catch (SQLException e) {
                        throw new ServletException("Servlet cannot display records", e);

                } catch (ClassNotFoundException e) {
                        throw new ServletException("JDBC Driver not found", e);
                }

                finally {
                        try {
                                if (rs != null) {
                                        rs.close();
                                        rs = null;
                                }
                                if (stmt != null) {
                                        stmt.close();
                                        stmt = null;
                                }

                                if (con != null) {
                                        con.close();
                                        con = null;
                                }
                        } catch (SQLException e) {
                        }

                }

                out.close();
        }

        protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws
ServletException, IOException {
                doPost(req, resp);
        }
}
```



Step-9 : Create Display_data.java class file for displaying the complete record

```
import java.io.*;
import jakarta.servlet.*;
import jakarta.servlet.http.*;
import java.sql.*;
import java.util.*;


public class Display_Data extends HttpServlet{
        public void service(HttpServletRequest req, HttpServletResponse res) throws IOException,
ServletException {

                res.setContentType("text/html");
                PrintWriter out = res.getWriter();
                out.println("<html><head><title>Servlet DB Connectivity</title><head>");
                out.println("<body>");
                Connection con = null;
                Statement stmt = null;
                boolean flag=false;

                ResultSet rs = null;
                String uname = "root";
                String pwd = "";
                String constr = "jdbc:mysql://localhost:3306/students";

                try {
                        Class.forName("com.mysql.cj.jdbc.Driver");
                        con = DriverManager.getConnection(constr, uname, pwd);
                        stmt = con.createStatement();
                        out.println("\n Connected to Database");
                        out.println("\n\n");
                        rs=stmt.executeQuery("select * from student_tab");

                        //displaying records
                        out.println("<center>");
                        out.println("<h2>Students Database</h2>");
                        out.println("<table border='3'>");
                        out.println("<th>Roll Number</th>");
                        out.println("<th>Name</th>");
                        out.println("<th>Address</th>");
                        out.println("<th>Phone</th>");

                        while(rs.next()) {
                                out.println("<tr>");
                                out.println("<td>");
                                out.print(rs.getObject(1).toString());
                                out.println("</td>");
                                out.println("<td>");
                                out.print(rs.getObject(2).toString());
                                out.println("</td>");
                                out.println("<td>");
                                out.print(rs.getObject(3).toString());
                                out.println("</td>");
                                out.println("<td>");
                                out.print(rs.getObject(4).toString());
                                out.println("</td>");
                                out.println("</tr>");

                        }
```

```
                    out.print("</table>");
                    out.print("</center>");

                    out.print("</body></html>");




                }                               catch (SQLException e) {
                        throw new ServletException("Servlet cannot display records", e);

                } catch (ClassNotFoundException e) {
                        throw new ServletException("JDBC Driver not found", e);
                }

                finally {
                        try {
                                if (rs != null) {
                                        rs.close();
                                        rs = null;
                                }
                                if (stmt != null) {
                                        stmt.close();
                                        stmt = null;
                                }

                                if (con != null) {
                                        con.close();
                                        con = null;
                                }
                        } catch (SQLException e) {
                        }

                }

                out.close();
        }

        protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws
ServletException, IOException {
                doPost(req, resp);
        }
}
```

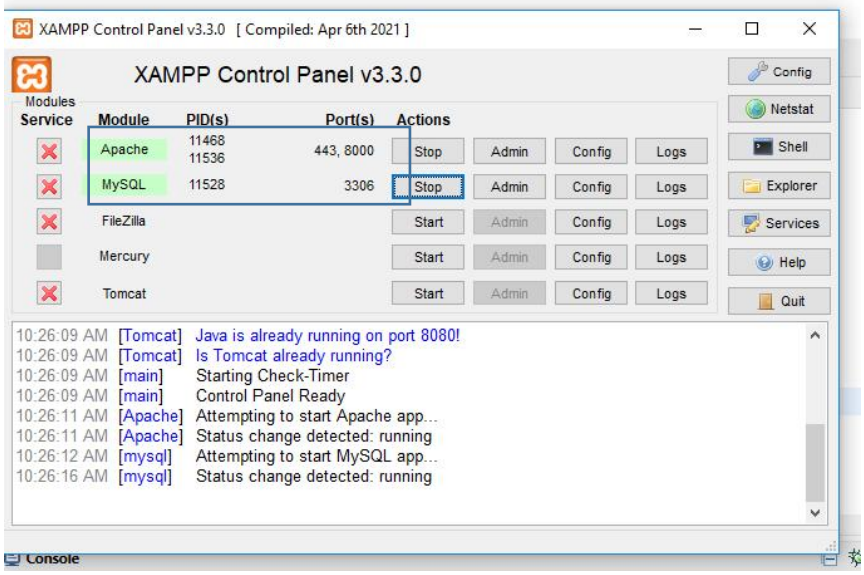


Step-10: Servlet Class URL mapping in web.xml file

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="https://jakarta.ee/xml/ns/jakartaee" xmlns:web="http://xmlns.jcp.org/xml/ns/javaee"
xsi:schemaLocation="https://jakarta.ee/xml/ns/jakartaee https://jakarta.ee/xml/ns/jakartaee/web-
app_5_0.xsd http://xmlns.jcp.org/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd"
id="WebApp_ID" version="5.0">
  <display-name>ServletPractical-3</display-name>

  <servlet>
    <servlet-name>Insert_Data</servlet-name>
    <servlet-class>Insert_Data</servlet-class>
  </servlet>

  <servlet-mapping>
    <servlet-name>Insert_Data</servlet-name>
    <url-pattern>/Insert_Data</url-pattern>

  </servlet-mapping>

    <servlet>
    <servlet-name>Delete_Data</servlet-name>
    <servlet-class>Delete_Data</servlet-class>
  </servlet>

  <servlet-mapping>
    <servlet-name>Delete_Data</servlet-name>
    <url-pattern>/Delete_Data</url-pattern>

  </servlet-mapping>

  <servlet>
    <servlet-name>Update_Data</servlet-name>
    <servlet-class>Update_Data</servlet-class>
  </servlet>

  <servlet-mapping>
```

```
  <servlet-name>Update_Data</servlet-name>
  <url-pattern>/Update_Data</url-pattern>

 </servlet-mapping>

  <servlet>
  <servlet-name>Display_Data</servlet-name>
  <servlet-class>Display_Data</servlet-class>
 </servlet>

 <servlet-mapping>
  <servlet-name>Display_Data</servlet-name>
  <url-pattern>/Display_Data</url-pattern>

 </servlet-mapping>

</web-app>
```

Step-11 : Start Xampp Server and Start Apache and MySQL Services



Right click on Database_Demo.htm lfile ->Run as->Run on server