PRACTICAL: 1

Aim: Socket Programming

1.1: Write TCP and UDP program for CHAT Application.

Server Program:

```
package Practical_1;
import java.io.*;
import java.net.*;
public class Practical_1_1_TCP_Server {
    public static void main(String[] args) throws Exception {
        ServerSocket ss = new ServerSocket(1702);
        Socket s = ss.accept();
        DataInputStream din = new DataInputStream(s.getInputStream());
        String str;
        str = din.readUTF();
        System.out.println("Client:\t" + str);
        DataOutputStream dout = new DataOutputStream(s.getOutputStream());
        DataInputStream msg = new DataInputStream(System.in);
        while (true) {
            str = din.readUTF();
            System.out.println("Client:\t" + str);
            System.out.println("Server:");
            str = msg.readLine();
            dout.writeUTF(str);
    }
}
```

Client Program:

```
package Practical_1;
import java.io.*;
import java.net.*;
```

```
public class Practical_1_1_TCP_Client {
    public static void main(String[] srgs) throws Exception {
        Socket s = new Socket("localhost", 1702);
        if (s.isConnected()) {
            System.out.println("Connected to Server");
        }
        DataInputStream msg = new DataInputStream(System.in);
        String str = "Start Chat.....................................................................";
        DataOutputStream dout = new DataOutputStream(s.getOutputStream());
        dout.writeUTF(str);
        System.out.println(str);
        DataInputStream din = new DataInputStream(s.getInputStream());
        while (true) {
            System.out.println("Client:\t");
            str = msg.readLine();
            dout.writeUTF(str + "\n");
            str = din.readUTF();
System.out.println("Server:\t" + str);
        }
    }
}
```

Output :

```
run:
Connected to Server
Start Chat.....................................................................
Client:
hi
Server: Hi
Client:
I am a client
Server: I am A server
Client:
By
Server: Byyy
Client:
```

1.2: Write TCP client and server program to get the date and time details from server on the client request.

Server Program:

```
package Practical_1;
import java.net.*;
import java.io.*;
import java.util.Date;
public class Practical_1_2_Server {
    public static void main(String args[]) throws Exception {
        ServerSocket ss = new ServerSocket(7777);
        while (true) {
            System.out.println("Waiting For Connection ...");
            try (Socket soc = ss.accept();
                    DataOutputStream out = new DataOutputStream(soc.getOutputStream())) {
                    out.writeBytes("Server Date " + (new Date()).toString() + "\n");
            } } } }
```

Client Program:

```
package Practical_1;
import java.net.*;
import java.io.*;
public class Practical_1_2_Client {
    public static void main(String args[]) throws Exception {
        Socket s = new Socket("localhost", 7777);
        BufferedReader in = new BufferedReader(new InputStreamReader(s.getInputStream()));
        System.out.println(in.readLine());
    } }
```

Output:

```
run:
Server Date Wed Apr 17 15:00:22 IST 2024
BUILD SUCCESSFUL (total time: 0 seconds)
```

1.3: Write a client-server program using TCP or UDP where the client sends 10 numbers and server responds with the numbers in sorted order.

Server Program:

```
package Practical_1;
import java.net.*;
import java.io.*;
import java.util.*;
public class Practical_1_3_Server {
    public static void main(String args[]) throws Exception {
        try (ServerSocket ss = new ServerSocket(7777); Socket s = ss.accept()) {
            System.out.println("connected. ..... ");
            DataInputStream din = new DataInputStream(s.getInputStream());
            DataOutputStream dout = new DataOutputStream(s.getOutputStream());
            int r,i = 0;
            int n = din.readInt();
            int a[] = new int[n];
            System.out.println("data:");
            int count = 0;
            System.out.println("Receiving Data. .. ");
            for (i = 0; i < n; i++) {
                a[i] = din.readInt();
            }
            System.out.println("Sorting Data. ..... ");
            Arrays.sort(a);
            System.out.println("Data Sorted");
            System.out.println("Sending Data ..... ");
            for (i = 0; i < n; i++) {
                dout.writeInt(a[i]);
            }
            System.out.println("\nData Sent Successfully");
        }
```

```
    }
      import java.io.*; "Data Sent");
      DataInputStream din = new DataInputStream(s.getInputStream());
      int r;
      System.out.println("Receiving Sorted Data... ");
      for (int i = 0; i < n; i++) {
         r = din.readInt();
         System.out.print(r + " ");
      }
      s.close();
    }
}
```

Output :

```
run:
Connected to server
Enter size of array:
5
Enter element to array:
24
56
66
12
89
Data Sent
Receiving Sorted Data. ..
12 24 56 66 89 BUILD SUCCESSFUL (total time: 18 seconds)
```

1.4:Implement TCP Server for transferring files using Socket and ServerSocket.

Server Program:

```
package Practical_1;
import java.io.*;
import java.net.*;
class Practical_1_4_Server {
    public static void main(String args[]) throws Exception {
        ServerSocket ss = new ServerSocket(7777);
        Socket s = ss.accept();
        System.out.println("connected. ..... ");
        FileInputStream fin = new FileInputStream("D://zeel//send.txt");
        DataOutputStream dout = new DataOutputStream(s.getOutputStream());
        int r;
        while ((r = fin.read()) != -1) {
            dout.write(r);
        }
        System.out.println("\nFiletranfer Completed");
        s.close();
        ss.close();
    }
}
```

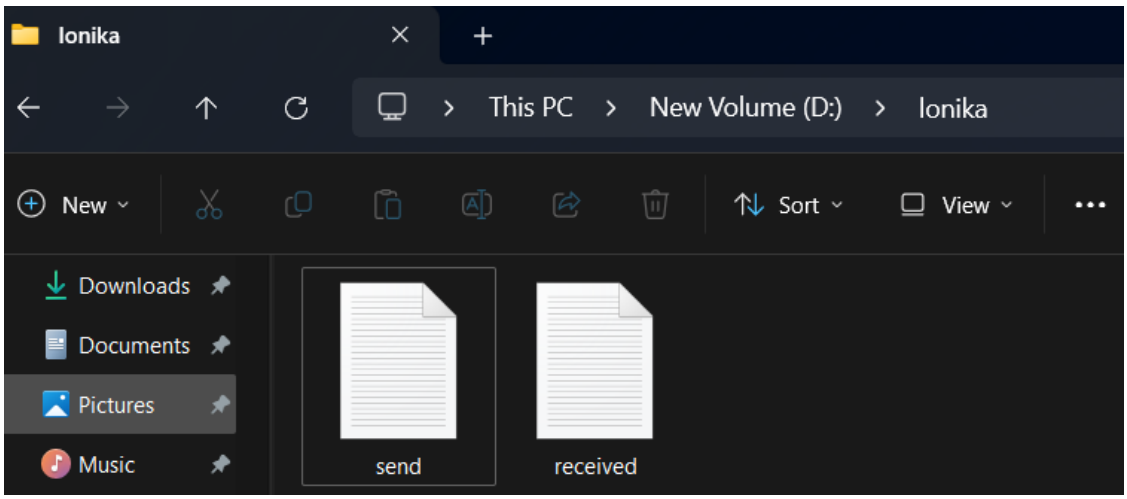
Client Program:

```
package Practical_1;
import java.io.*;
import java.net.*;
public class Practical_1_4_Client {
    public static void main(String[] args) throws Exception {
        Socket s = new Socket("localhost", 7777);
```

```
        if (s.isConnected()) {
            System.out.println("Connected to server");
        }
        FileOutputStream fout = new FileOutputStream("D://zeel//received.txt");
        DataInputStream din = new DataInputStream(s.getInputStream());
        int r;
        while ((r = din.read()) != -1) {
            fout.write((char) r);
        }
    }
}
```

Output :

```
run:
Connected to server
BUILD SUCCESSFUL (total time: 0 seconds)
```



PRACTICAL: 2

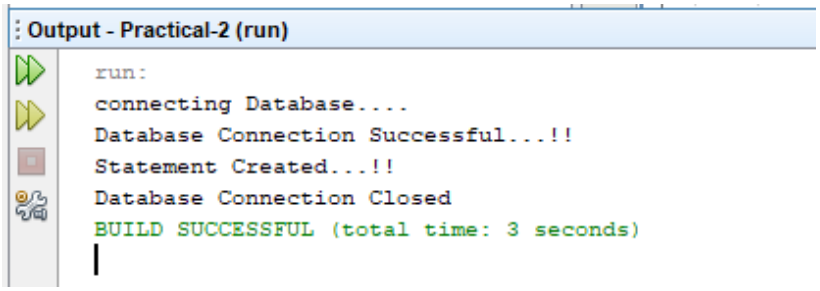
Aim: Write java programs to perform following task using JDBC

2.1 To create JDBC Connection.

Program:

```
package practical.pkg2; import
java.sql.Connection;
import   java.sql.DriverManager;
import    java.sql.SQLException;
import java.sql.Statement;
   public static void main(String[] args) throws ClassNotFoundException, SQLException {

      // TODO code application logic here
      Class.forName("com.mysql.jdbc.Driver");
      System.out.println("connecting Database... ");
      Connection con =
      DriverManager.getConnection("jdbc:mysql://localhost:3306/student_db","root","");

      System.out.println("Database Connection Successful.. !!");
      Statement st = con.createStatement();
      System.out.println("Statement Created.. !!");
      con.close();

      System.out.println("Database Connection Closed");

   }}
```

Output:



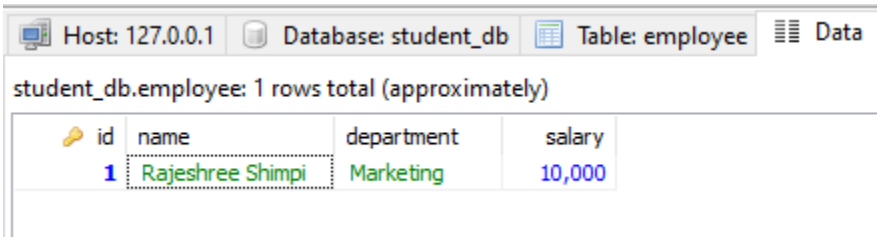
2.2Execute and read select queries using JDBC.

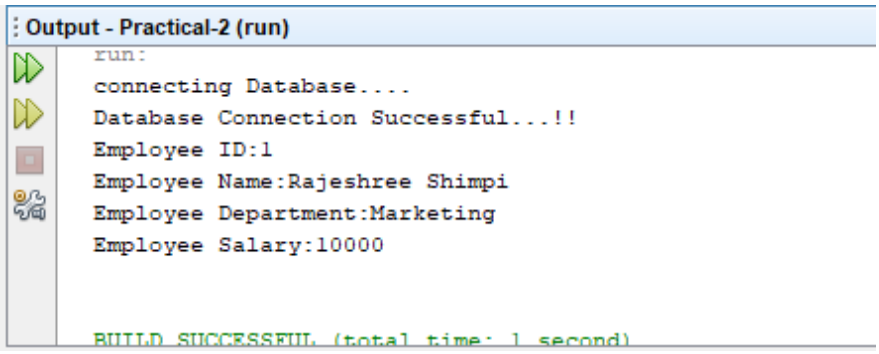
Program:

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet; import
java.sql.SQLException;import
java.sql.Statement; public class
Prac_2_2 {
   public static void main(String[] args) throws ClassNotFoundException, SQLException {

      // TODO code application logic here
      Class.forName("com.mysql.jdbc.Driver");
      System.out.println("connecting Database... ");
      Connection con=
      DriverManager.getConnection("jdbc:mysql://localhost:3306/student_db","root","");

      System.out.println("Database Connection Successful.. !!");
      Statement st=(Statement) con.createStatement();
      ResultSet rs;

      rs = st.executeQuery("select * from employee");
      while(rs.next())
      {

         System.out.print("Employee ID:"+rs.getString(1)+"\n");
         System.out.print("Employee Name:"+rs.getString(2)+"\n");
         System.out.print("Employee Department:"+rs.getString(3)+"\n");
         System.out.print("Employee Salary:"+rs.getString(4)+"\n");
         System.out.print("\n");
      }

      System.out.print("\n");st.close();
      con.close();
```

```
 }

}
```

Output:


Host: 127.0.0.1
Database: student_db
Table: employee
Data
student_db.employee: 1 rows total (approximately)
id
name
department
salary
1
Rajeshree Shimpi
Marketing
10,000


Output - Practical-2 (run)
run:
connecting Database....
Database Connection Successful...!!
Employee ID:1
Employee Name:Rajeshree Shimpi
Employee Department:Marketing
Employee Salary:10000
BUILD SUCCESSFUL (total time: 1 second)

2.3Update a record in the database using JDBC.

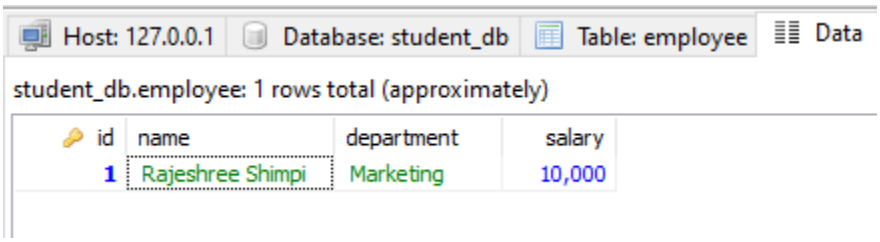
Program:

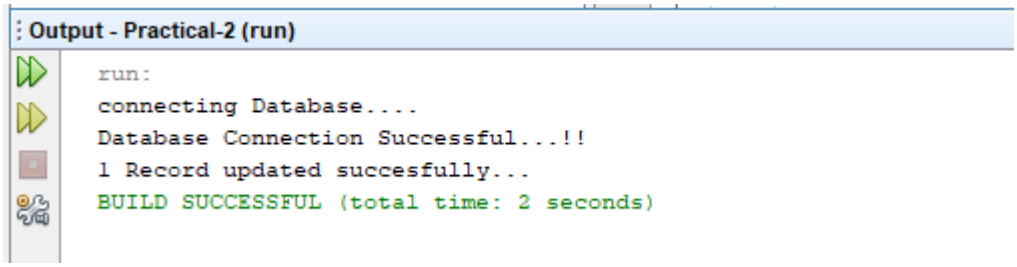
```
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet; import
java.sql.SQLException;import
java.sql.Statement; public class
Prac_2_3 {
   public static void main(String[] args) throws ClassNotFoundException, SQLException {

      // TODO code application logic here
      try{

      String query;
      Class.forName("com.mysql.jdbc.Driver");
      System.out.println("connecting Database... ");
      Connection con =
      DriverManager.getConnection("jdbc:mysql://localhost:3306/student_db","root","");

      System.out.println("Database Connection Successful.. !!");
      Statement st=(Statement) con.createStatement();

      query = " update employee set department='Sales' where name='Rajeshree Shimpi'";
         st.executeUpdate(query);
         System.out.println("1 Record updated succesfully.. ");
      st.close();
      con.close();

      }catch(Exception e)

      {

         System.out.println(e.toString());
```

```
    }
  }
}
```

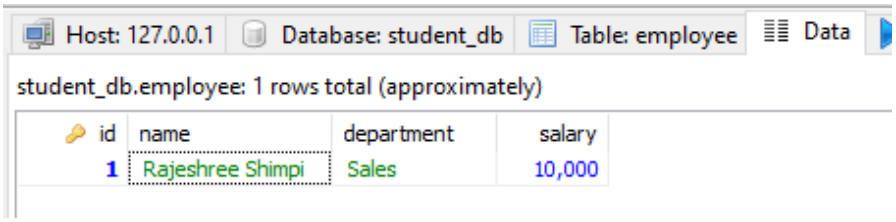
Output:

Before update





After update



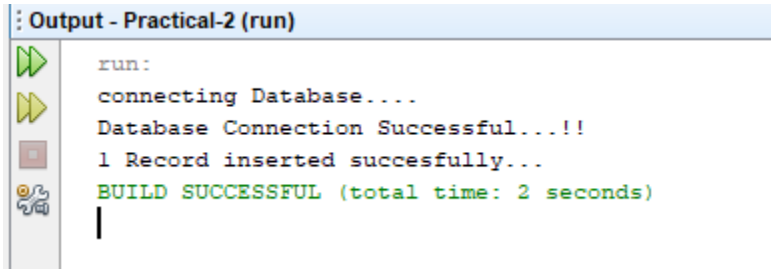
2.4: Execute any type of query in JDBC.

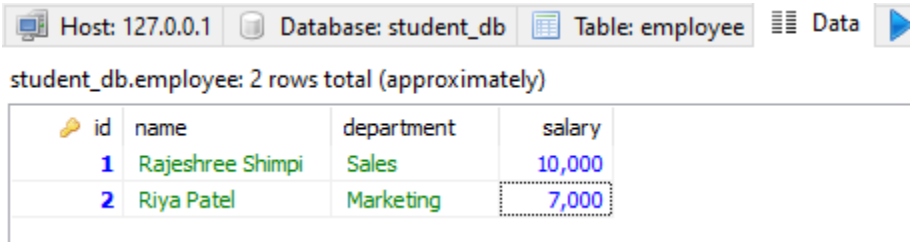
Program:

```
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet; import
java.sql.SQLException;import
java.sql.Statement; public class
Prac_2_4 {
   public static void main(String[] args) throws ClassNotFoundException, SQLException {

      // TODO code application logic here
      try
      {

      String query;
      Class.forName("com.mysql.jdbc.Driver");
      System.out.println("connecting Database... ");
      Connection con =
      DriverManager.getConnection("jdbc:mysql://localhost:3306/student_db","root","");

      System.out.println("Database Connection Successful.. !!");
      Statement st=(Statement) con.createStatement();

         query = " insert into employee values(2,'Riya Patel','Marketing',7000)";
         st.executeUpdate(query);

         System.out.println("1 Record updated succesfully.. ");
      st.close();
      con.close();

      }catch(Exception e)

      {
```

```
            System.out.println(e.toString());
        }
    }
}
```

Output





id	name	department	salary
1	Rajeshree Shimpi	Sales	10,000
2	Riya Patel	Marketing	7,000

PRACTICAL-3

Fetching results using JDBC.

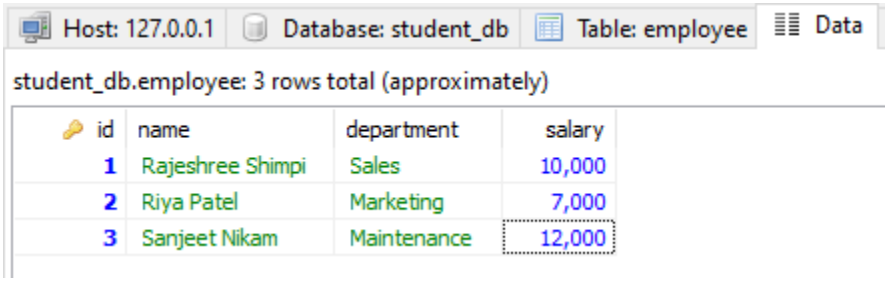
3.1 Use of JDBC prepared statement with ResultSet.

Program:

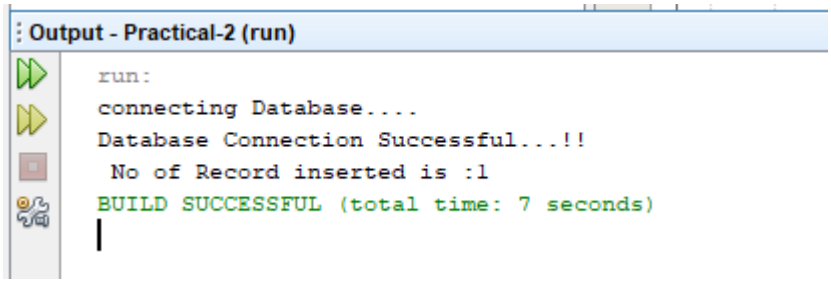
```
import  java.sql.Connection; import
java.sql.DriverManager; import
java.sql.PreparedStatement;import
java.sql.SQLException; import
java.sql.Statement;
public class Prac_3_1 {

   public static void main(String[] args) throws ClassNotFoundException, SQLException {
   // TODO code application logic here String query;
      Class.forName("com.mysql.jdbc.Driver");
       System.out.println("connecting Database... ");

        Connection con=
        DriverManager.getConnection("jdbc:mysql://localhost:3306/student_db","root","");

        System.out.println("Database Connection Successful.. !!");
        Statement st=(Statement) con.createStatement();
        query = " insert into employee values(?,?,?,?)";
        PreparedStatement ps=con.prepareStatement(query);
        ps.setInt(1,4);
        ps.setString(2, "Raj Bhavsar");
        ps.setString(3,"Sales");
        ps.setInt(4,8000);
        int i=ps.executeUpdate();

         System.out.println(" No of Record inserted is :"+i);
        st.close();
        con.close();
```

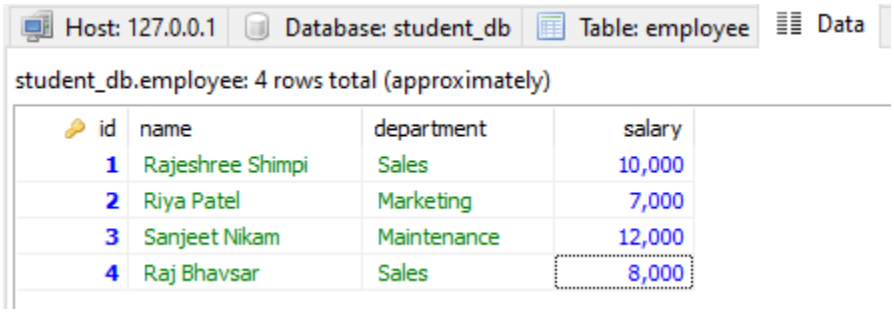
```
}
}
```

Output:



id	name	department	salary
1	Rajeshree Shimpi	Sales	10,000
2	Riya Patel	Marketing	7,000
3	Sanjeet Nikam	Maintenance	12,000





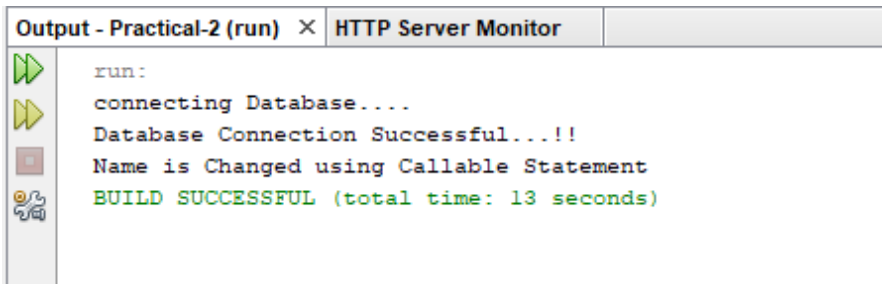
id	name	department	salary
1	Rajeshree Shimpi	Sales	10,000
2	Riya Patel	Marketing	7,000
3	Sanjeet Nikam	Maintenance	12,000
4	Raj Bhavsar	Sales	8,000

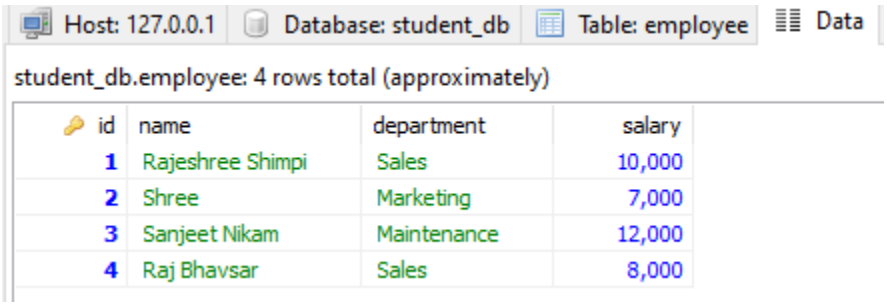
3.2: To execute stored procedure using CallableStatement statement.

Program:

```
import java.sql.CallableStatement;
import java.sql.Connection;

 import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;
public class Prac_3_2 {

    public static void main(String[] args) throws ClassNotFoundException, SQLException {
       Class.forName("com.mysql.jdbc.Driver");
       System.out.println("connecting Database... ");

      Connection con=
      DriverManager.getConnection("jdbc:mysql://localhost:3306/student_db","root","");

       System.out.println("Database Connection Successful.. !!");
       CallableStatement cs = con.prepareCall("{call setname(?,?)}");
       cs.setInt(1,2);
          cs.setString(2,"Shree");
          cs.execute();
          System.out.println("Name is Changed using Callable Statement");

    }

}
```

Output




Host: 127.0.0.1 Database: student_db Table: employee Data

student_db.employee: 4 rows total (approximately)

id	name	department	salary
1	Rajeshree Shimpi	Sales	10,000
2	Shree	Marketing	7,000
3	Sanjeet Nikam	Maintenance	12,000
4	Raj Bhavsar	Sales	8,000

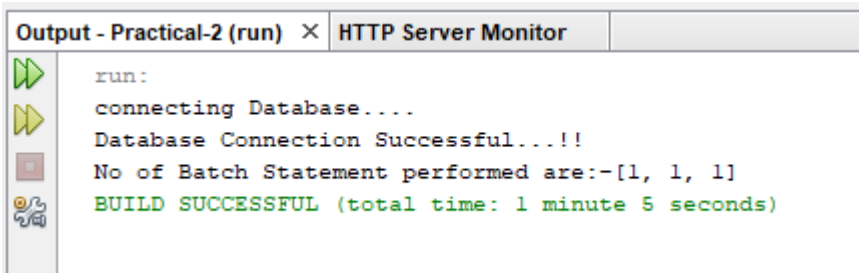
3.3: Batch update using Statement.

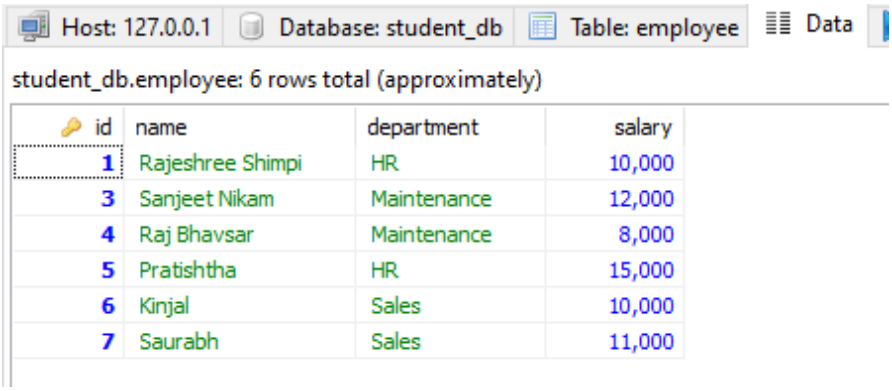
Program:

```
import java.sql.CallableStatement;
import java.sql.Connection;

import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.Arrays;
public class Prac_3_3 {
 public static void main(String[] args) throws ClassNotFoundException, SQLException {
      try{
      Class.forName("com.mysql.jdbc.Driver");
      System.out.println("connecting Database... ");
      Connection con=
     DriverManager.getConnection("jdbc:mysql://localhost:3306/student_db","root","");
      System.out.println("Database Connection Successful.. !!");
      Statement st=(Statement) con.createStatement();
      String query1,query2,query3;
        query1="insert into employee values(7,'Saurabh','Sales',11000)";
        query2="update employee set department='Maintenance' where id='4'";
        query3="delete from employee where name='Shree'";
        st.addBatch(query1);
        st.addBatch(query2);
        st.addBatch(query3);
        int[] i=st.executeBatch();
        System.out.println("No of Batch Statement performed are:-" +Arrays.toString(i));
        st.close();
        con.close();

      }catch(Exception e)
```

```
        {
            System.out.println(e.toString());
        }
    }
}
```

Output





id	name	department	salary
1	Rajeshree Shimpi	HR	10,000
3	Sanjeet Nikam	Maintenance	12,000
4	Raj Bhavsar	Maintenance	8,000
5	Pratishtha	HR	15,000
6	Kinjal	Sales	10,000
7	Saurabh	Sales	11,000

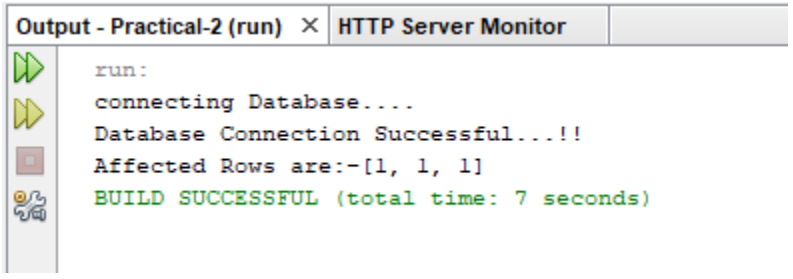
3.4: Batch update using PreparedStatement.

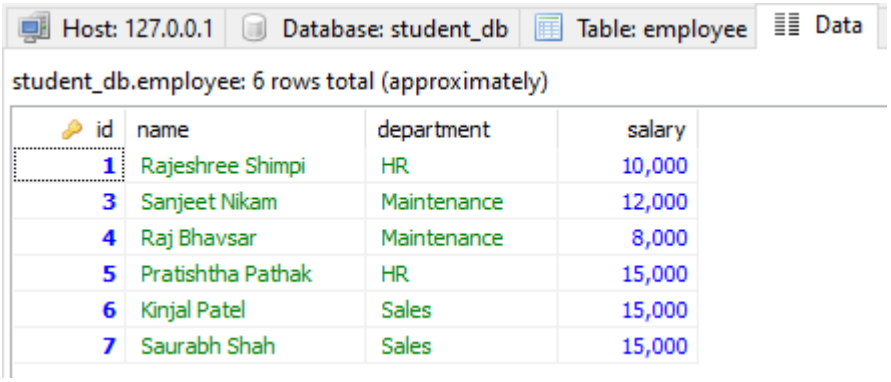
Program:

```
import  java.sql.Connection;

import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.Arrays;
public class Prac_3_4 {
 public static void main(String[] args) throws ClassNotFoundException, SQLException {
      try{
      Class.forName("com.mysql.jdbc.Driver");
      System.out.println("connecting Database... ");
      Connection con=
      DriverManager.getConnection("jdbc:mysql://localhost:3306/student_db","root","");

      System.out.println("Database Connection Successful.. !!");
      Statement st=(Statement) con.createStatement();
      String query = " update employee set name=?,salary=? where id=? ";
      PreparedStatement ps=con.prepareStatement(query);
      ps.setString(1, "Pratishtha Pathak");
      ps.setInt(2,15000);
      ps.setInt(3,5);
      ps.addBatch();

      ps.setString(1, "Kinjal Patel");
      ps.setInt(2,15000); ps.setInt(3,6);
      ps.addBatch();
      ps.setString(1, "Saurabh Shah");
```

```
        ps.setInt(2,15000); ps.setInt(3,7);
        ps.addBatch();

        int[] affectedRecords = ps.executeBatch();

        System.out.println("Affected Rows are:-" +Arrays.toString(affectedRecords));
        st.close();
        con.close();

        }

        catch(Exception e)

        {

           System.out.println(e.toString());

        }

    }

}
```

Output





id	name	department	salary
1	Rajeshree Shimpi	HR	10,000
3	Sanjeet Nikam	Maintenance	12,000
4	Raj Bhavsar	Maintenance	8,000
5	Pratishtha Pathak	HR	15,000
6	Kinjal Patel	Sales	15,000
7	Saurabh Shah	Sales	15,000

PRACTICAL: 4

Aim: Implement java programs using Servlets.

4.1 Write a Servlet program to print system date and time.

Program:

```
import java.io.*;

import java.util.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class Practical3_1 extends HttpServlet{
  @Override
  public void doGet(HttpServletRequest request, HttpServletResponse
     response) throws ServletException, IOException{
 PrintWriter pw = response.getWriter();
 Date today = new Date();
 pw.println("<html>"+"<body><h1>Today Date is:- </h1>");
 pw.println("<b>"+ today+"</b></body>"+ "</html>");
  }

}
```

Output:

4.2 Implement student registration form with enrollment number, first name,last name, semester, contact number. Store the details in database.Also implement search, delete and modify facility for student records.

Program:

Index.html

```
<html>
  <head>
    <title>Students Details</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <center>
      <h1><b>Perform Following Operation</b></h1>
      <table border="">
      <tr><td><a href="insert.html" with="100"height="100">REGISTRATION</a></td></tr>
      <tr><td><a href="search.html" with="100"height="100">SEARCH</a></td></tr>
      <tr><td><a href="update.html" with="100"height="100">UPDATE</a></td></tr>
      <tr><td><a href="delete.html" with="100"height="100">DELETE</a></td></tr>      </table>
  </center>
  </body>
</html>
```

Insert.html

```
<html>
  <head>
    <title>Student Details</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <center>
    <form action="Servlet1">
      <h1><b>REGISTRATION FORM</b></h1>
      <table border="">
      <tr><td>First Name:</td><td><input type="text" name="fname"value=""></td></tr>
      <tr><td>Last Name:</td><td><input type="text" name="lname"value=""></td></tr>
      <tr><td>Semester:</td><td><input type="number" name="sem"value=""></td></tr>
      <tr><td>Contact No:</td><td><input type="text" name="contact"value=""></td></tr>
      <tr><td>Enrollment:</td><td><input type="text" name="enroll"value=""></td></tr>
      </table>
      <table border="">
        <br>
        <tr><td><input type="submit" name="Save" value="Save"></td></tr>
  </table></center>
  </form></body>
</html>
```

Search.html

```
<html>
  <head>
    <title>Student Details</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <center>
    <form action="Servlet4">
      <h1><b>SEARCH RECORD</b></h1>
      <table border="">
      <tr><td>Enter Name You want to search a record :</td><td><input type="text"name="fname"
      value=""></td></tr>
      </table>
      <table border="">
        <br>
        <tr><td><input type="Submit" name="Save" value="Search"></td></tr>
      </table>
    </form>
  </center>
  </body>
</html>
```

Update.html

```
<html>
  <head>
    <title>Student Details</title>
      <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <center>
    <form action="Servlet2">
      <h1><b>UPDATE RECORD</b></h1>
      <table border="">
      <tr><td>Enter Enrollment You want to update a record :</td><td><inputtype="text"
      name="enroll" value=""></td></tr>
      <tr><td>Enter Name of your Enrollment You want to update arecord :</td><td><input
      type="text" name="fname" value=""></td></tr>
      </table>
      <table border="">
        <br>
        <tr><td><input type="Submit" name="Save" value="UPDATE"></td></tr>
      </table>
    </form>
  </center>
  </body>
</html>
```

Delete.html

```
<html>
  <head>
    <title>Student Details</title>
      <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
  </head>
  <body>
    <center>
      <form action="Servlet3">
       <h1><b>DELETE RECORD</b></h1>
       <table border="">
       <tr><td>Enter Name You want to delete record :</td><td><input type="text"name="fname"
       value=""></td></tr>
       </table>
       <table border="">
          <br>
          <tr><td><input type="Submit" name="Save" value="DELETE"></td></tr>
       </table>
    </form>
  </center>
  </body>
</html>
```

Servlet1.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.Statement;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class Servlet1 extends HttpServlet {
  Statement st=null;
  Connection con=null;

  static final String DB_URL="jdbc:mysql://localhost:3306/students";
  static final String USER="root";
  static final String PASS="";
    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {

          String s1,s2,s3,s4,s5,sql;
          s1=request.getParameter("fname");
          s2=request.getParameter("lname");
          s3=request.getParameter("sem");
          s4=request.getParameter("contact");
          s5=request.getParameter("enroll");
      System.out.println("<!DOCTYPE html>");
       System.out.println("<html>");
      System.out.println("<head>");
      System.out.println("<title>Servlet Data Insertion</title>");
      System.out.println("</head>");
      System.out.println("<body>");
      System.out.println("<h3>First Name: " + s1 + "</h3>");
```

```
  System.out.println("<h3>Last Name: " + s2 + "</h3>");
  System.out.println("<h3>Semester: " + s3 + "</h3>");
   System.out.println("<h3>Contact: " + s4 + "</h3>");
   System.out.println("<h3>Enrollment: " + s5 + "</h3>");
   System.out.println("</body>");
  System.out.println("</html>");
      Class.forName("com.mysql.jdbc.Driver");

      con = DriverManager.getConnection(DB_URL,USER,PASS);

      st = con.createStatement();
      sql=" insert into student_18(fname,lname,enroll,contact,sem)
      values('"+s1+"','"+s2+"','"+s5+"','"+s4+"', '"+s3+"')";
      st.executeUpdate(sql);

      System.out.println("Record Inserted Sucessfuly...");
    }
    catch(Exception e)

    {

      System.out.println(e.toString());

    }

}

@Override

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

}

@Override

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

```
    }

    @Override

    public String getServletInfo() {
        return "Short description";
    }
}
```

Servlet2.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.Statement;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class Servlet2 extends HttpServlet {
  Statement st=null;
  Connection con=null;
   ResultSet rs;
  static final String DB_URL="jdbc:mysql://localhost:3306/students";
  static final String USER="root";
  static final String PASS="";

    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        try (PrintWriter out = response.getWriter()) {
       String s1,s2,sql; s1=request.getParameter("fname");
       s2=request.getParameter("enroll");
       System.out.println("<!DOCTYPE html>");
```

```
 System.out.println("<html>");
System.out.println("<head>");
System.out.println("<title>Record Updation</title>");
System.out.println("</head>");
System.out.println("<body>");
System.out.println("<h3>Name Changed Succesfully </h3>");
System.out.println("</body>");
System.out.println("</html>");
    Class.forName("com.mysql.jdbc.Driver");
     con = DriverManager.getConnection(DB_URL,USER,PASS);
     st = con.createStatement();
     sql=" update student_18 set fname= '"+s1+"' where enroll='"+s2+"' ";
     st.executeUpdate(sql);
     System.out.println("Record Updated Sucessfuly...");
      rs = st.executeQuery("select * from student_18 where fname='"+s1+"'");
        while(rs.next())
         {
System.out.println("<h5>First Name:-"+rs.getString(1)+ "</h5>");
System.out.println("<h5>Last Name:-"+rs.getString(2)+ "</h5>");
 System.out.println("<h5>Enrollment:-"+rs.getString(3)+ "</h5>");
 System.out.println("<h5>Contact No:-"+rs.getString(4)+ "</h5>");
 System.out.println("<h5>Sem:-"+rs.getString(5)+ "</h5>");
System.out.println("</body>");
System.out.println("</html>");
 }
 catch(Exception e)

 {

    System.out.println(e.toString());

 }
```

```
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    }
    @Override

    protected void doPost(HttpServletRequest request, HttpServletResponse response)throws
            ServletException, IOException {
        processRequest(request, response);
    }
    @Override
    public String getServletInfo() {
        return "Short description";
    }// </editor-fold>
}
```

Servlet3.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.Statement;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
```

```
public class Servlet3 extends HttpServlet {
  Statement st=null;
  Connection con=null;

  static final String DB_URL="jdbc:mysql://localhost:3306/students";
  static final String USER="root";
  static final String PASS="";
    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
       response.setContentType("text/html;charset=UTF-8");
       try (PrintWriter out = response.getWriter()) {
           /* TODO output your page here. You may use following sample code. */
           String s1,sql;
      s1=request.getParameter("fname");
      System.out.println("<!DOCTYPE html>");System.out.println("<html>");
      System.out.println("<head>");
      System.out.println("<title>Record Updation</title>");System.out.println("</head>");
      System.out.println("<body>");
      System.out.println("<h3>Record Deleted of name: " + s1 + "</h3>");
      System.out.println("</body>");
      System.out.println("</html>");
      Class.forName("com.mysql.jdbc.Driver");
      con = DriverManager.getConnection(DB_URL,USER,PASS);
      st = con.createStatement();
      sql=" delete from student_18 where fname='"+s1+"' ";
      st.executeUpdate(sql);
       System.out.println("Record Deleted Sucessfuly...");
       }
       catch(Exception e)

       {

           System.out.println(e.toString());

       }

   }
```

```
    void doGet(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);

    }

    @Override

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

    }
    @Override

    public String getServletInfo() {
        return "Short description";
    }

}
```

Servlet4.java

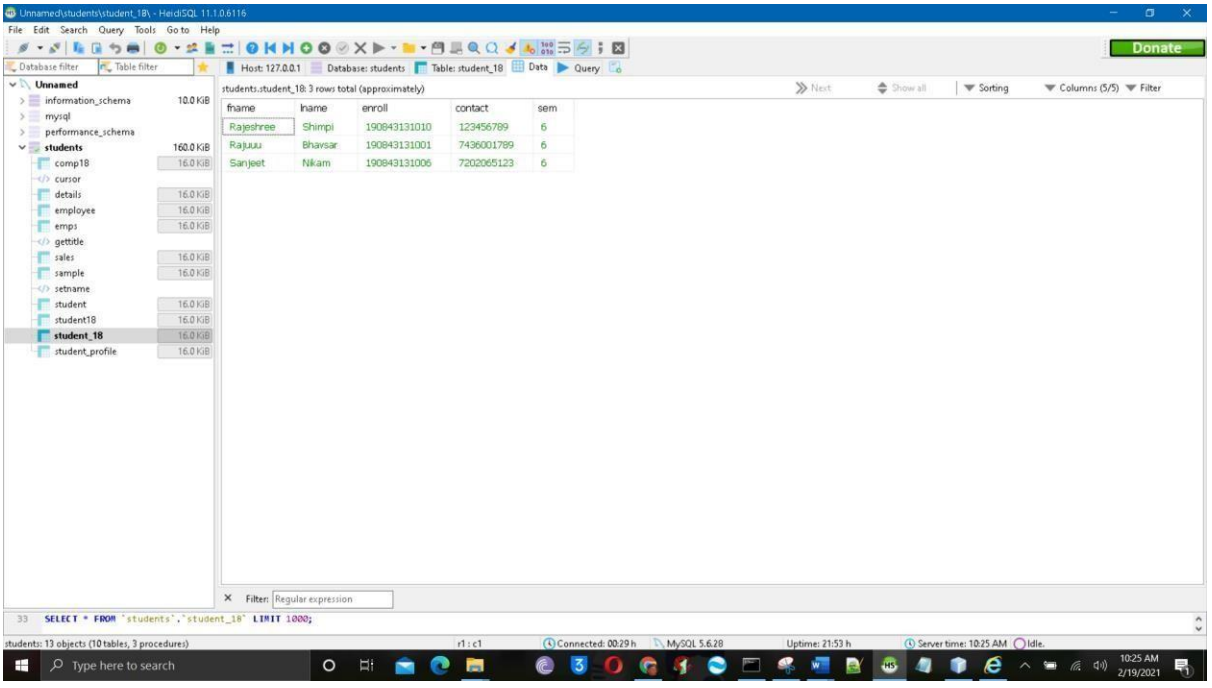
```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;

 import java.sql.Statement;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class Servlet4 extends HttpServlet {
  Statement st=null;
  Connection con=null;

  static final String DB_URL="jdbc:mysql://localhost:3306/students";
  static final String USER="root";
```

```
static final String PASS="";

 protected void processRequest(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
   String s1,sql; s1=request.getParameter("fname");
        System.out.println("<!DOCTYPE html>");System.out.println("<html>");
        System.out.println("<head>");
        System.out.println("<title>Record Updation</title>");
        System.out.println("</head>");
        System.out.println("<body>");
        System.out.println("<h3>Record Searched Value of name: " + s1 + "</h3>");
        Class.forName("com.mysql.jdbc.Driver");

        con = DriverManager.getConnection(DB_URL,USER,PASS);

        st = con.createStatement();
        System.out.println("Record Search Sucessfuly...");
        ResultSet rs;
            rs = st.executeQuery("select * from student_18 where fname="'+s1+'"");
            while(rs.next())
            {
   System.out.println("<h5>First Name:-"+rs.getString(1)+ "</h5>");
   System.out.println("<h5>Last Name:-"+rs.getString(2)+ "</h5>");
   System.out.println("<h5>Enrollment:-"+rs.getString(3)+ "</h5>");
   System.out.println("<h5>Contact No:-"+rs.getString(4)+ "</h5>");
   System.out.println("<h5>Sem:-"+rs.getString(5)+ "</h5>");

            }
   System.out.println("</body>");
   System.out.println("</html>");
    }
    catch(Exception e)

    {

        System.out.println(e.toString());
```

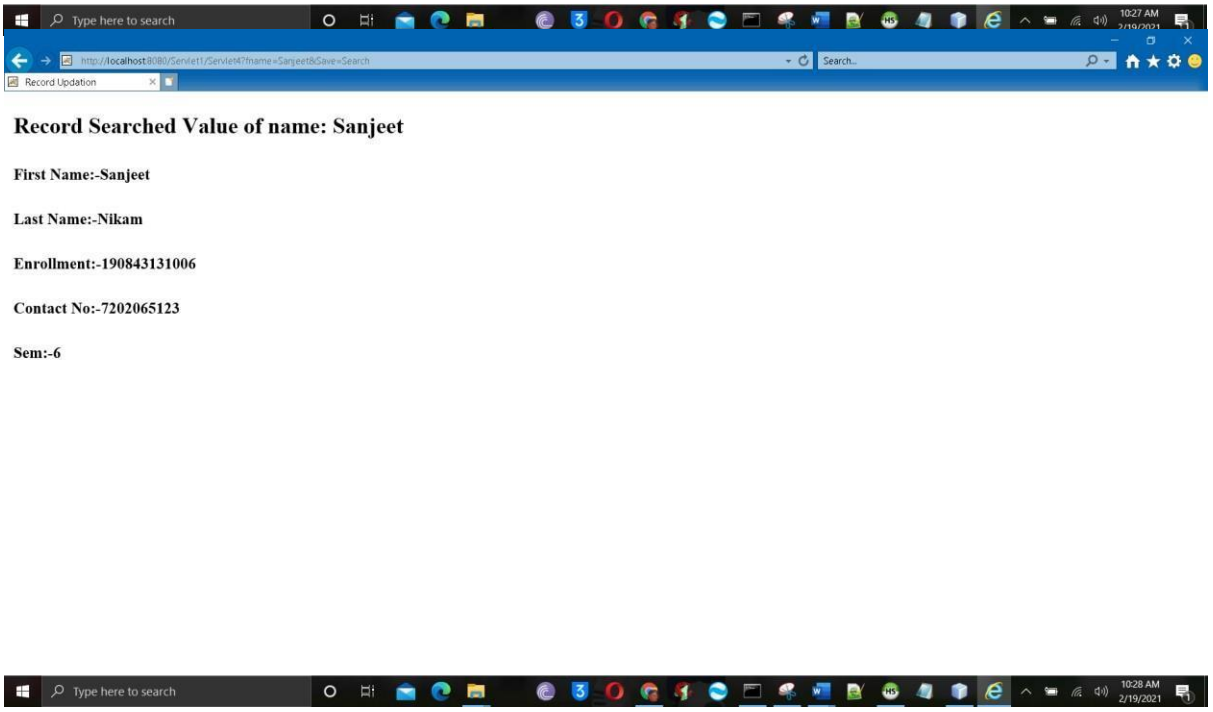
```
    }
}
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
    processRequest(request, response);
}
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)throws
        ServletException, IOException {
    processRequest(request, response);
}
@Override
public String getServletInfo() {
    return "Short description";
```

Output:

➢ Insert Record

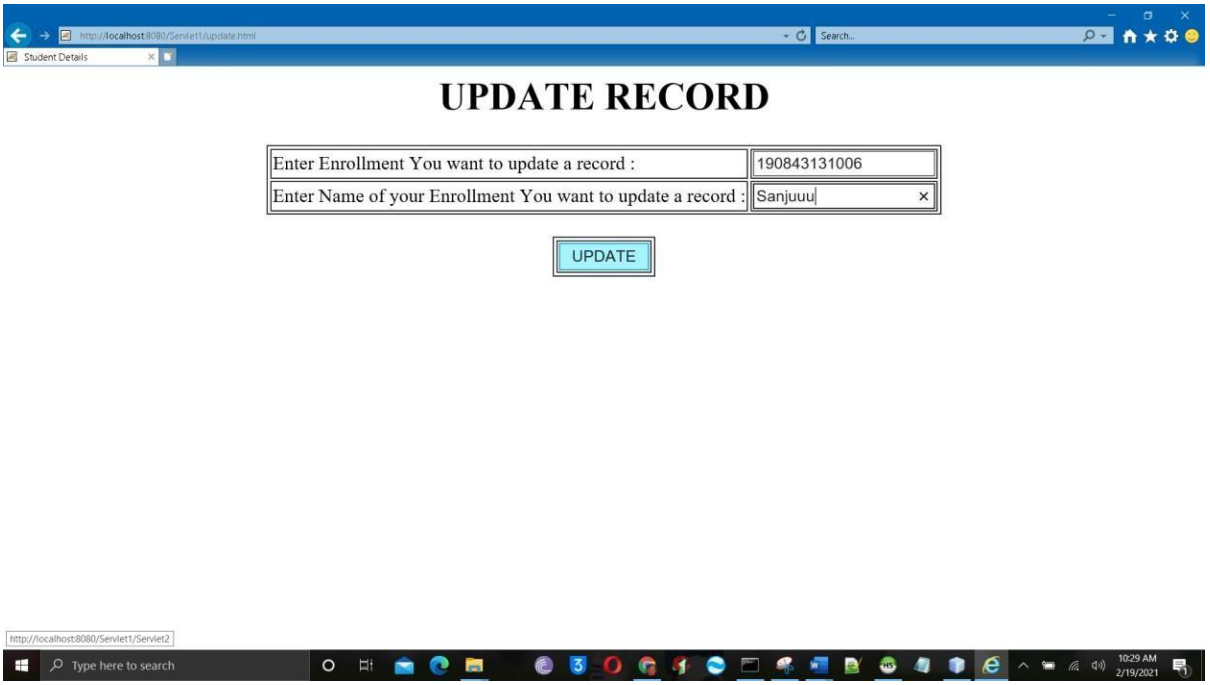


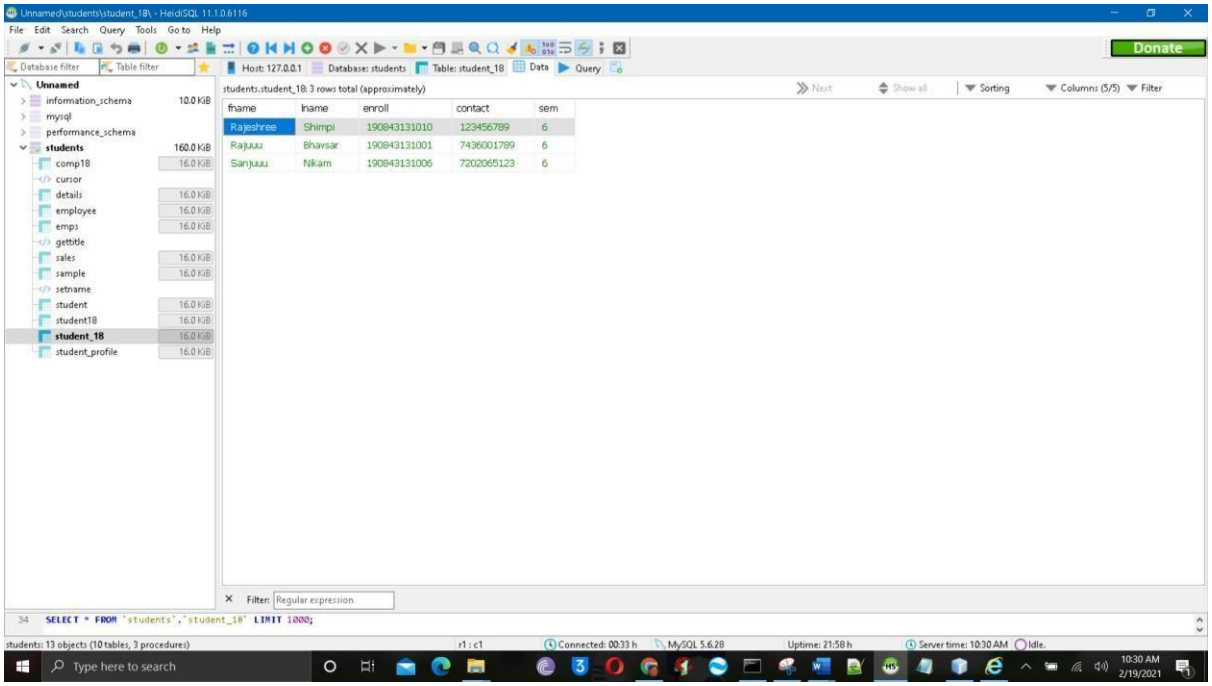
Search Record



After Searching Data in Database

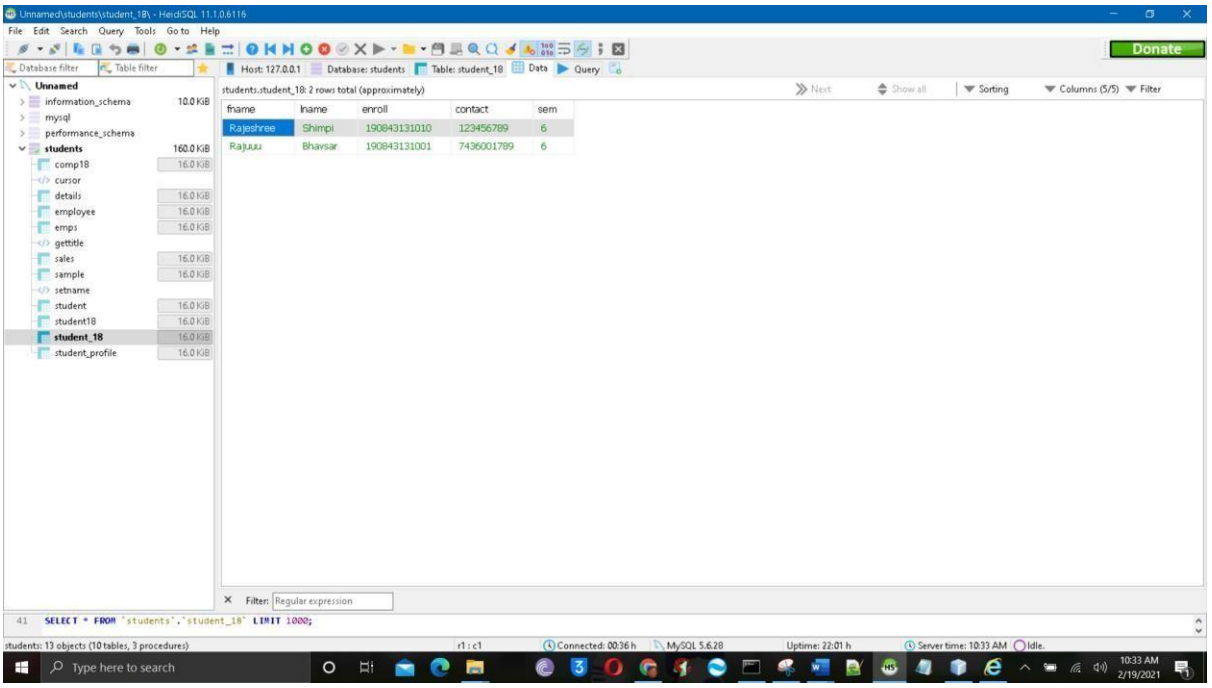
➢ Update Record





After Updating Record

➢ Delete Record



After Delete Record

4.3 Design a form to input details of an employee and submit the data to a servlet. Write code for servlet that will save the entered details as a new record in database table Employee with fields (EmpId, EName, Email, Age).

Program:

Index.html

```
<html>
    <head>
        <title>Student Details</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>
        <center>
        <form action="Servlet2">
            <h1><b>REGISTRATION FORM</b></h1>
            <table border="">
            <tr><td>Employee ID:</td><td><input type="text" name="eid"value=""></td></tr>
            <tr><td>Employee Name:</td><td><input type="text" name="ename"value=""></td></tr>
            <tr><td>Email:</td><td><input type="text" name="email" value=""></td></tr>
            <tr><td>Age:</td><td><input type="number" name="age" value=""></td></tr>
            </table>
            <table border="">
                <br><tr><td><input type="submit" name="Save" value="Save"></td></tr>
            </table>
```

```
        </form>
    </center>
    </body>
</html>
```

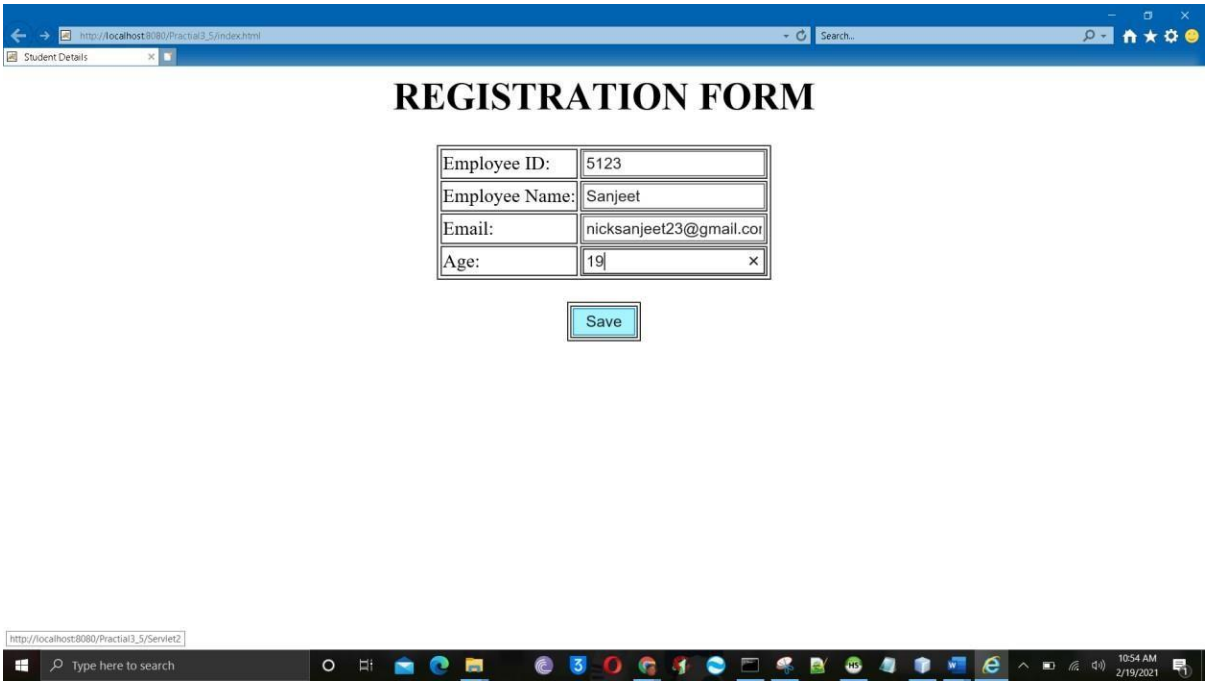
Servlet2.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.Statement;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class Servlet2 extends HttpServlet {
  Statement st=null;
  Connection con=null;

  static final String DB_URL="jdbc:mysql://localhost:3306/students";
  static final String USER="root";
  static final String PASS="";
   protected void processRequest(HttpServletRequest request, HttpServletResponse response)
           throws ServletException, IOException {
       response.setContentType("text/html;charset=UTF-8");
       try (PrintWriter out = response.getWriter()) {
           /* TODO output your page here. You may use following sample code. */
           String s1,s2,s3,s4,s5,sql;
           s1=request.getParameter("eid");
           s2=request.getParameter("ename");
           s3=request.getParameter("email");
           s4=request.getParameter("age");
```

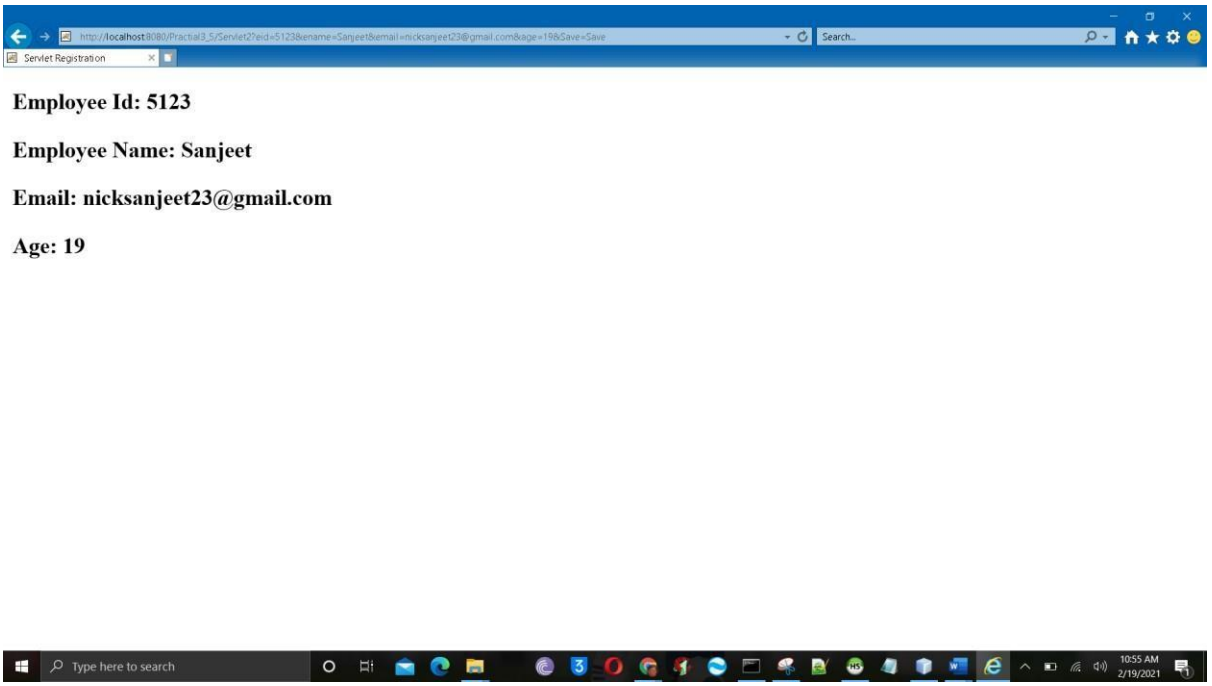
```
  System.out.println("<!DOCTYPE html>");
  System.out.println("<html>");
  System.out.println("<head>");
  System.out.println("<title>Servlet Registration</title>");
   System.out.println("</head>");
  System.out.println("<body>");
  System.out.println("<h3>Employee Id: " + s1 + "</h3>");
  System.out.println("<h3>Employee Name: " + s2 + "</h3>");
   System.out.println("<h3>Email: " + s3 + "</h3>");
  System.out.println("<h3>Age: " + s4 + "</h3>");
  System.out.println("</body>");
  System.out.println("</html>");
  Class.forName("com.mysql.jdbc.Driver");
  con = DriverManager.getConnection(DB_URL,USER,PASS);
  st = con.createStatement();
  sql=" insert into employee(e_id,e_name,email,age)values("'+s1+"','"+s2+"','"+s3+"','"+s4+"')";
  st.executeUpdate(sql);
  System.out.println("Record Inserted Sucessfuly...");
   }catch(Exception e)

   {

      System.out.println(e.toString());

   }

}

@Override

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

}

@Override

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

```
        processRequest(request, response);
    }
    @Override
    public String getServletInfo() {
        return "Short description";
    }
}
```

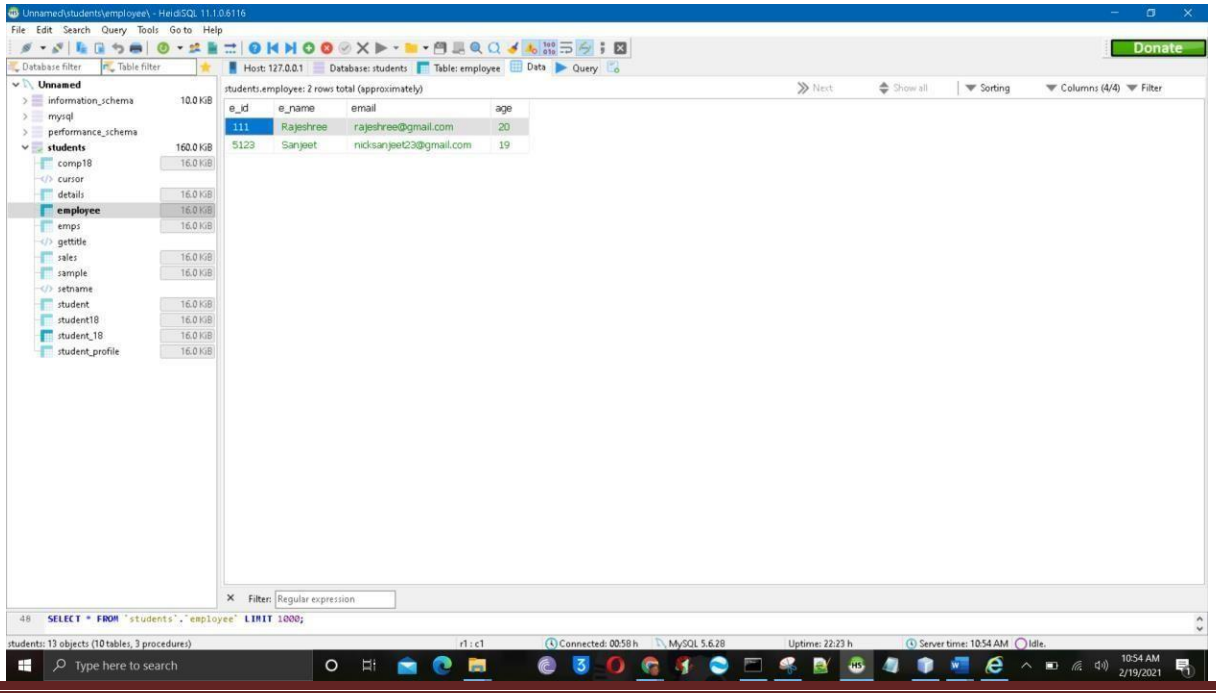
Output



- Record you Registered



- After Registering Employee Record is inserted into Databa



PRACTICAL: 5

Aim: Implement programs using Java Server Pages.

5.1: Implement cookies to store firstname and lastname using Java server pages.

index.html

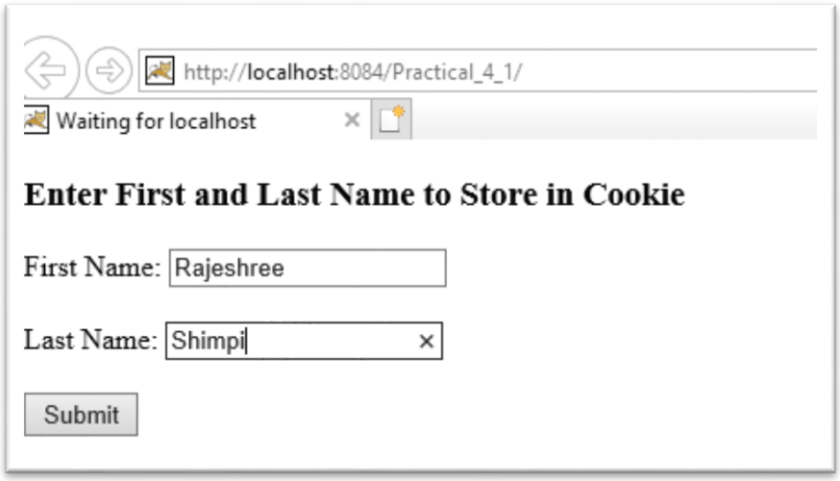
```
<html>
    <head>
      <title>TODO supply a title</title>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>
      <h3>Enter First and Last Name to Store in Cookie</h3>
      <form action="newjsp.jsp" method="GET">
      First Name: <input type="text" name="fname"><br><br />
      Last Name: <input type="text" name="lname" /><br><br>
      <input type="submit" value="Submit" />
      </form>
    </body>
</html>
```

newjsp.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>

<!DOCTYPE html>

<%

  Cookie fname = new Cookie("fname",request.getParameter("fname"));
  Cookie lname = new Cookie("lname",request.getParameter("lname"));
  fname.setMaxAge(60*60*10);
  lname.setMaxAge(60*60*10);
  response.addCookie( fname );
  response.addCookie( lname );
%>

<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
   <body>
      <h3>Value of Cookie with JSP </h3>
      <b>First Name:</b><%= request.getParameter("fname")%><br>
      <b>Last Name:</b> <%= request.getParameter("lname")%>
   </body>
</html>
```

Output

- **Entering values for Storing into the Cookies.**



- **After Submitting First and Last Name.**

5.2 Implement the shopping cart for users for the online shopping. Applythe concept of session.

index.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

   <head>

      <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

      <title>Shopping Cart - Login</title>

   </head>

   <body background="img/bg1.jpg"><center>

      <div class="container">

         <div class="headbanner">

            <h1>

               <center>

                  <img src="img/shopping.png" />[My Shopping Cart]

               </center>

            </h1>

         </div>

         <div class="mycontent">

            <div class="space">

            <span><a class="formtext">Login</a></span></div>

            <div class="formcontent">

               <form action="loginval" method="post">

                  <table border="2px">
```

```
                    <tr>
                      <td class="formtext">Username :</td>
                            <td><input id="name" name="uname" type="text" size="30"/></td>
                            <td><a>[Any name]</a></td>
                    </tr>
                    <tr>
                      <td class="formtext">Password :</td>
                      <td><input id="pas" name="pass" type="password" size="30"/></td>
                      <td><a>[Pass = 1234]</a></td>
                     </tr>
                     <tr>
                      <td colspan="3"><center>
                       <input type="submit"value="Submit"/></td></center>
                     </tr>
                  </table>
                </form>
              </div>
            </div>
          </div>
          </center>
      </body>
  </html>
```

shop.jsp

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

<%@ page import="classes.Item" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

   <head>

      <%

         String user = (String) session.getAttribute("user");
         if(user == null) {
            response.sendRedirect("index.jsp");

           }

        %>

      <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

      <title>Shopping Cart - Shop</title>

   </head>

      <body background="img/bg3.jpg"><center>

      <div class="container">

         <form action="requesthandle" method="post">

            <div class="headbanner">

               <h1>

                  <center>

                     <img src="img/shopping.png" />[My Shopping Cart]

                  </center>

               </h1>
```

```
</div>
<div class="mycontent">
   <div class="cartof">
      <center><a>Cart Of [<% out.print(session.getAttribute("user"));%>]
      <input name="logout"type="submit"value="Logout"></input></a></center>
   </div>
   <div class="cartcontent">
      <div class="myitems">
         <table width="600px" cellpadding="0" cellspacing="0" border="2px">
            <tr>
               <th>#id</th>
               <th>Item</th>
               <th>Price</th>
               <th>Action</th>
            </tr>
            <%if (session.getAttribute("itemlist") != null) {
                  ArrayList mycart = (ArrayList) session.getAttribute("itemlist");
                  for(int i = 0; i < mycart.size(); i++) {
                     Item it = (Item) mycart.get(i);
            %>
            <tr>
               <td align="center"><%out.print(i);%></td>
                     <td align="center"><% out.print(it.name);%></td>
               <td align="center"><% out.print(it.price);%></td>
               <td align="center">
```

```
                    <inputname="del"type="submit"value="Delete"onclick="this.value=
                    <%out.print(i);%>"></input></td>
                </tr>
                <%}}%>
            </table>
        </div>
        <div class="total">
            <a>My Total : $[<% out.print(session.getAttribute("total"));%>]</a><br />
            <a>Total Qty: [<% ArrayList il = (ArrayList)session.getAttribute("itemlist");
            System.out.print(il.size());%>]</a><br />
            <input name="chkout" type="submit" value="Checkout" />
        </div>
    </div>
    <div class="items">
        <table width="900px" border="2px">
            <tr class="border_bottom">
                <td>#1</td>
                <td>Sunglass</td>
                <td>Ray-Ban, Dark Purple Sunglass with the Casing</td>
                <td>$34</td>
                <td><img src="img/sunglass.jpg" width="90" height="90" /></td>
                <td><input name="addtocart1" type="submit" value="Add to Cart"/></td
        <td/></td></center>
</body>
</html>
```

error.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

<title>Shopping Cart - Login</title>

</head>

   <body background="img/bg1.jpg">

      <center>

   <form action="index.jsp" method="post">

<div class="container">

  <div class="headbanner">

         <h1><center>

          <img src="img/shopping.png" />[My Shopping Cart]

</center></h1>

  </div>

  <div class="mycontent">

<h3 align="center">Oops! Error<br />Your password is incorrect, Try Again!<br /><input
type="submit" value="Back" /></h3>

  </div>

</div>

   </form>

</center>

   </body>
```

```
</html>
```

checkout.jsp

```
<%@page import="java.util.ArrayList"%>
<%@ page import="classes.Item" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
    <title>Shopping Cart - Check out</title>
  </head>
  <body background="img/bg1.jpg"><center>
    <form action="purchase" method="post">
      <%ArrayList it_list = (ArrayList) session.getAttribute("itemlist");%>
      <div class="container">
        <div class="headbanner">
          <h1><center>
              <img src="img/shopping.png" />[My Shopping Cart]
            </center></h1>
        </div>
        <div class="mycontent">
          <a>Checkout My Cart</a><br />
          <table width="500px" border="2px">
            <%for (int i = 0; i < it_list.size(); i++) {
```

```
                classes.Item itm = (Item) it_list.get(i);%>
                <tr>
                   <td><%out.print(itm.name);%></td>
                   <td><%out.print(itm.price);%></td>
                </tr>
                <% }%>
                <tr>
                <td>MyTotal</td><td>$[<%out.print(session.getAttribute("total"));%>]</td>
                  </tr>
                  <tr>
                   <td><input type="submit" value="Purchase" /></td>
                  </tr>
                  <tr>
                   <td><img src="img/paywith.png" width="210" height="80" /></td></tr>
               </table>
             </div>
          </div>
       </form>
       </center>
   </body>
</html>
```

success.jsp

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
    <title>Shopping Cart - Success</title>
      </head>
  <body background="img/bg1.jpg"><center>
    <%if(session.getAttribute("purch")!="true"){response.sendRedirect("index.jsp");} %>
    <form action="shop.jsp" method="post">
      <div class="container">
        <div class="headbanner">
          <h1><center>
            <img src="img/shopping.png" />[My Shopping Cart]
          </center></h1>
        </div>
        <div class="mycontent">
          <h3 align="center">Purchase has been succeeded! Thank You.<br /><inputtype="submit"
            value="Ok" /></h3>
        </div>
        </div>
    </form>
  </center></body>
</html>
```

RequestHandle.java

```
import classes.Item;
import java.io.IOException;
import java.io.PrintWriter;
import java.util.ArrayList;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
public class requesthandle extends HttpServlet {

    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        response.setContentType("text/html;charset=UTF-8");
        HttpSession mysession = request.getSession();
        ArrayList mycart = (ArrayList) mysession.getAttribute("itemlist");
        int value = (Integer) mysession.getAttribute("total");
        String i1 = request.getParameter("addtocart1");
        String i2 = request.getParameter("addtocart2");
        String i3 = request.getParameter("addtocart3");
        String i4 = request.getParameter("addtocart4");
        String chk = request.getParameter("chkout");
        String logout = request.getParameter("logout");
        String pressdel = request.getParameter("del");
        if(i1 != null) {
            Item myitem = new Item("#1", "Sunglass", 34);
            value = value + 34;
            mycart.add(myitem);
            mysession.setAttribute("itemlist", mycart);
            mysession.setAttribute("total", value);
            response.sendRedirect("shop.jsp");
        }
```

```
else if (i2 != null) {

    Item myitem = new Item("#2", "Wrist Watch", 66);
    value = value + 66;
    mycart.add(myitem);
    mysession.setAttribute("itemlist", mycart);
    mysession.setAttribute("total", value);
    response.sendRedirect("shop.jsp");
}
 else if (i3 != null) {

    Item myitem = new Item("#3", "Camera", 167);
    value = value + 167;
    mycart.add(myitem);
    mysession.setAttribute("itemlist", mycart);
    mysession.setAttribute("total", value);
    response.sendRedirect("shop.jsp");
}
else if (i4 != null) {

    Item myitem = new Item("#4", "Shoes", 23);
    value = value + 23;
    mycart.add(myitem);
    mysession.setAttribute("itemlist", mycart);
    mysession.setAttribute("total", value);
    response.sendRedirect("shop.jsp");
}
else if (chk != null) {
    mysession.setAttribute("chk", chk);
    response.sendRedirect("checkout.jsp");
    }
 else if (logout != null) {
    mysession.invalidate();
    response.sendRedirect("index.jsp");
}
```

```
        else if (pressdel != null) {

            Item item_to_Delete = (Item) mycart.get(Integer.parseInt(pressdel));
            value = value - item_to_Delete.price; mysession.setAttribute("total",
            value); mycart.remove(Integer.parseInt(pressdel));
            mysession.setAttribute("tod", pressdel);
            response.sendRedirect("shop.jsp");
        }

    }

    @Override

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

    }

    @Override

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

    }

    @Override

    public String getServletInfo() {
        return "Short description";

    }// </editor-fold>

}
```

Loginval.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.util.ArrayList;
import javax.jms.Session;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
import javax.xml.ws.Dispatch;

public class loginval extends HttpServlet {

    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        String username = (String) request.getParameter("uname");
        String password = (String) request.getParameter("pass");
        if (password.equals("1234")) {
            ArrayList cart = new ArrayList();
            int totalcost = 0;
            HttpSession mysession = request.getSession();
            mysession.setAttribute("user", username);
            mysession.setAttribute("itemlist", cart);
            mysession.setAttribute("total", totalcost);
            response.sendRedirect("shop.jsp");
        }
        else{
        response.sendRedirect("error.jsp");
        }
    }

    @Override

    protected void doGet(HttpServletRequest request, HttpServletResponse response)
```

```
        throws ServletException, IOException {
    processRequest(request, response);

}

@Override

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

}

@Override

public String getServletInfo() {return
    "Short description";
}// </editor-fold>

}
```

Addtocart.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.util.ArrayList;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
public class addtocart extends HttpServlet {

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

    @Override

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

```
        processRequest(request, response);
    }
    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    }
    @Override
    public String getServletInfo() {return
        "Short description";
    }// </editor-fold>
}
```

Purchase.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.util.ArrayList;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
public class purchase extends HttpServlet {
    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        ArrayList newlist = new ArrayList();int
        newval = 0;
       HttpSession mysession = request.getSession();
```

```
            mysession.setAttribute("purch", "true");
            mysession.setAttribute("itemlist", newlist);
            mysession.setAttribute("total", newval);
            response.sendRedirect("success.jsp");
        }

        @Override

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

        }

        @Override

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

        }

        @Override

        public String getServletInfo() {return
            "Short description";
        }// </editor-fold>

}
```

Item.java

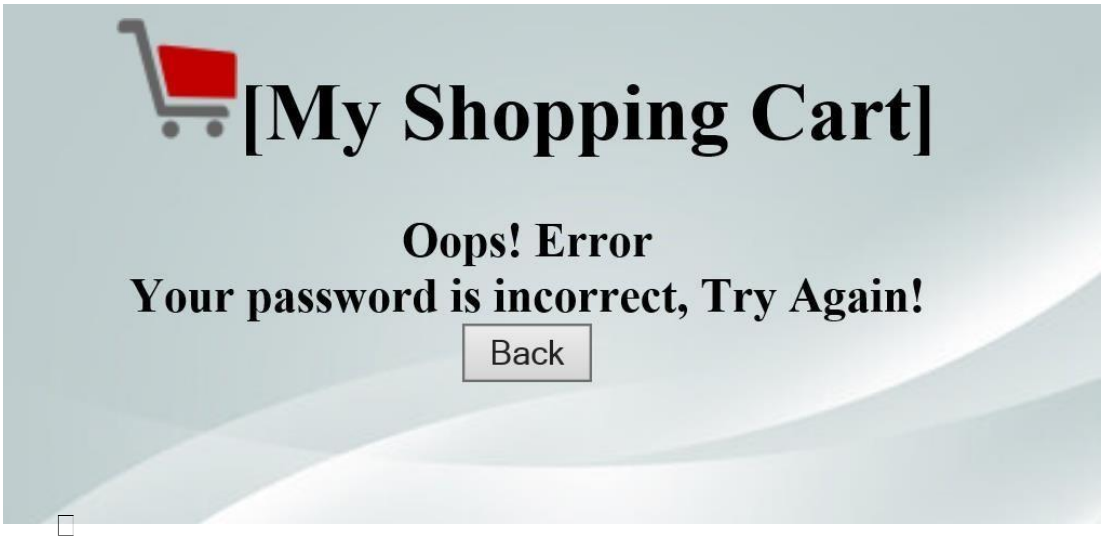
```
package classes;
public class Item {
public String id;
   public String name;
   public int price;
    public Item(String a, String b, int c) {
        this.id = a;
        this.name = b;
```

```
        this.price = c;
    }
}
```

Output

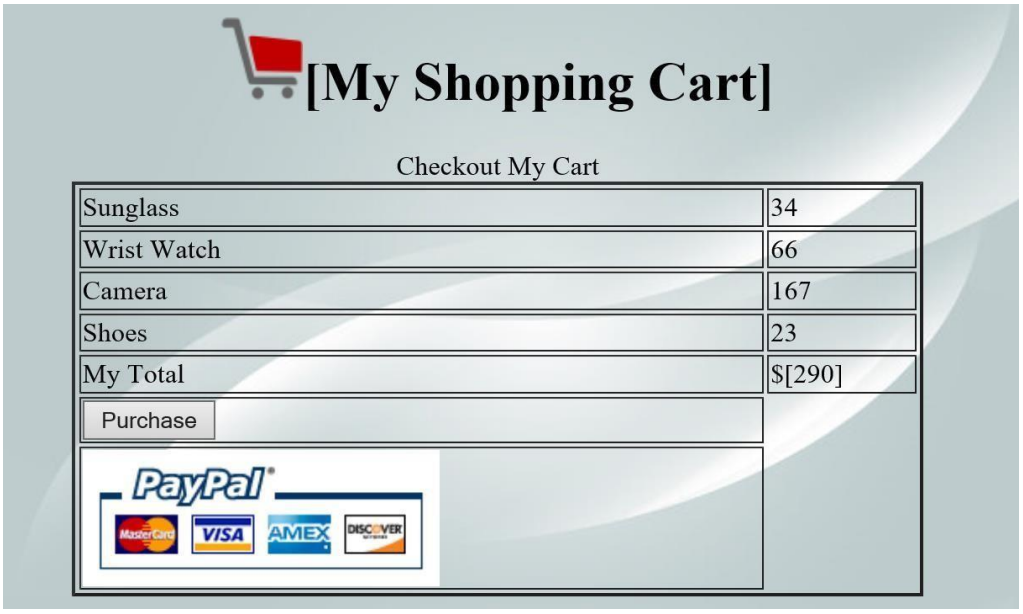
Login Page

After entering Wrong Password

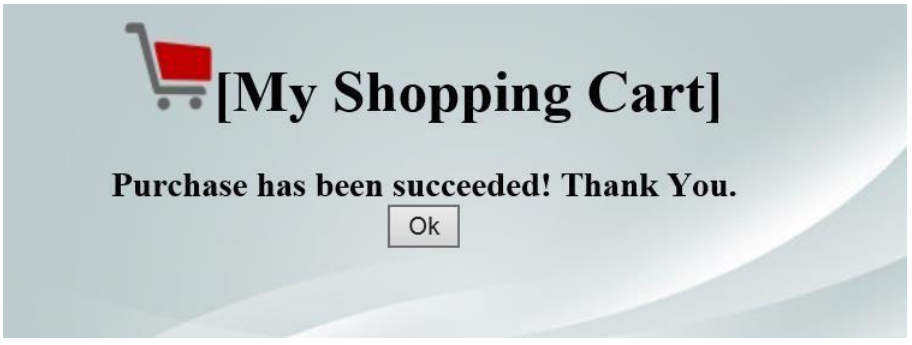


Shopping Page for User1 where User1 can Add the Product to Cart as well as Delete the Product from the Cart and Also Checkout with Selected Product and Can also Logout.

- **Checkout Page after Adding Product in to the Cart.**



- **After checking out, Success Message is Displayed**



5.3: Write a web application which takes id, name, mobile no, semester, marks, percentage pass to servlet. Servlet forward to model class having method getid(),getname(), getmobno(), getsem(), getmarks() and getPercentage(). Display all the information in .jsp page.

index.html

```
<html>
    <head>
        <title>TODO supply a title</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>
        <center>
            <form action="NewServlet">
            <h1><b>REGISTRATION FORM</b></h1>
            <table>
                <tr><td>Student ID:</td><td><input type="text" name="sid" value=""></td></tr>
                <tr><td>Name:</td><td><input type="text" name="sname" value=""></td></tr>
                <tr><td>Semester:</td><td><input type="text" name="sem" value=""></td></tr>
                <tr><td>Mobile No:</td><td><input type="text" name="mob" value=""></td>
                </tr>
                <tr><td>Marks:</td><td><input type="text" name="mark" value=""></td></tr>
                <tr><td>Percentage:</td><td><input type="text" name="per" value=""></td></tr>
            </table>
            <table border="">
                <br><tr><td><input type="submit" name="Save" value="Save"></td></tr>
            </table>
        </form>
    </center>
```

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

NewServlet.java

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
public class NewServlet extends HttpServlet{

 protected void processRequest(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
        /* TODO output your page here. You may use following sample code. */
        String dest = "student.jsp";
        String s1,s2,s3,s4,s5,s6;
        s1=request.getParameter("sid");
        s2=request.getParameter("sname");
        s3=request.getParameter("sem");
        s4=request.getParameter("mob");
        s5=request.getParameter("mark");
        s6=request.getParameter("per");
        Student bean = new Student();
        bean.setID(s1);
        bean.setNAME(s2);
        bean.setSEM(s3);
        bean.setMOBILE(s4);
        bean.setMARK(s5);
        bean.setPERCENTAGE(s6);

        request.setAttribute("student", bean);
        RequestDispatcher rd=request.getRequestDispatcher(dest);
```

```
            rd.forward(request, response);
            System.out.println("<!DOCTYPE html>");
            System.out.println("<html>");
            System.out.println("<head>");
            System.out.println("<title>Servlet NewServlet</title>");
            System.out.println("</head>");
            System.out.println("<body>");
            System.out.println("<h1>Servlet NewServlet at " + request.getContextPath() + "</h1>");
            System.out.println("</body>");
            System.out.println("</html>");

        }
    }
    @Override

    protected void doGet(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);
    }
}
```

Student.java

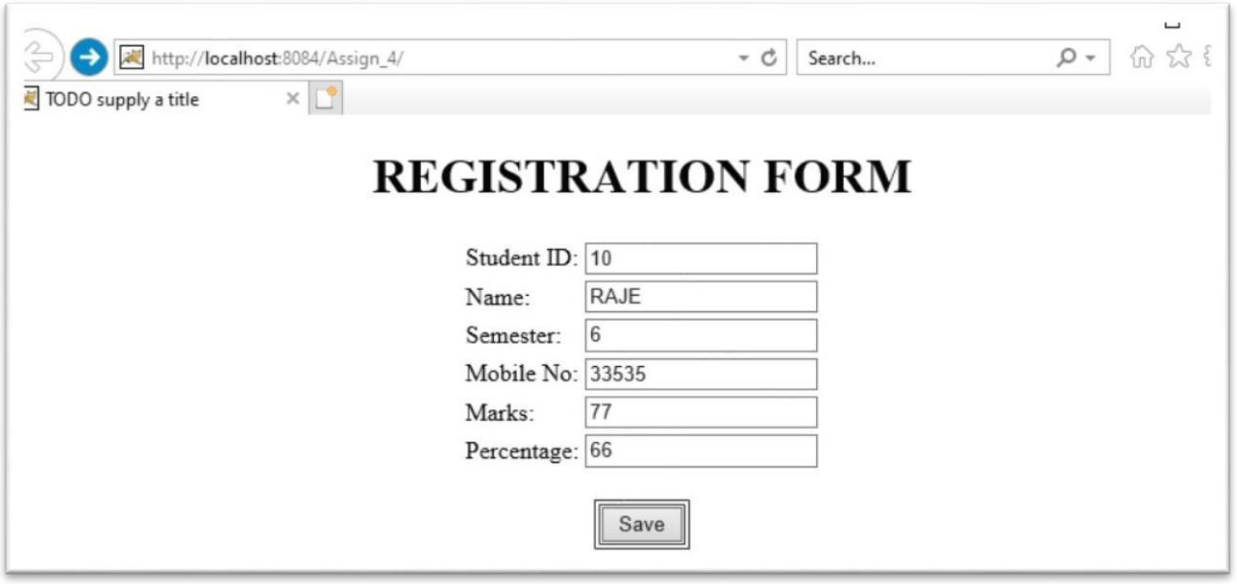
```
public class Student {
    public String
    id,name,semester,mobile,marks,percentage;public
    String getID(){
    return id; }
    public void setID(String value)
    {
    this.id = value;
    }
    public String getNAME()
    {
    return name;
    }
    public void setNAME(String value)
    {
    this.name = value;
    }
    public String getSEM()
    {
    return semester;
    }
    public void setSEM(String value)
    {
    this.semester = value;
    }
    public String getMOBILE()
    {
    return mobile;
```

```
    }
    public void setMOBILE(String value)
    {
    this.mobile = value;

    }
    public String getMARK()
    {

    return marks;

    }
    public void setMARK(String value)

    {
    this.marks = value;
}

    public String getPERCENTAGE()
    {

    return percentage;

    }
    public void setPERCENTAGE(String value)

    {
    this.percentage = value;
    }
```

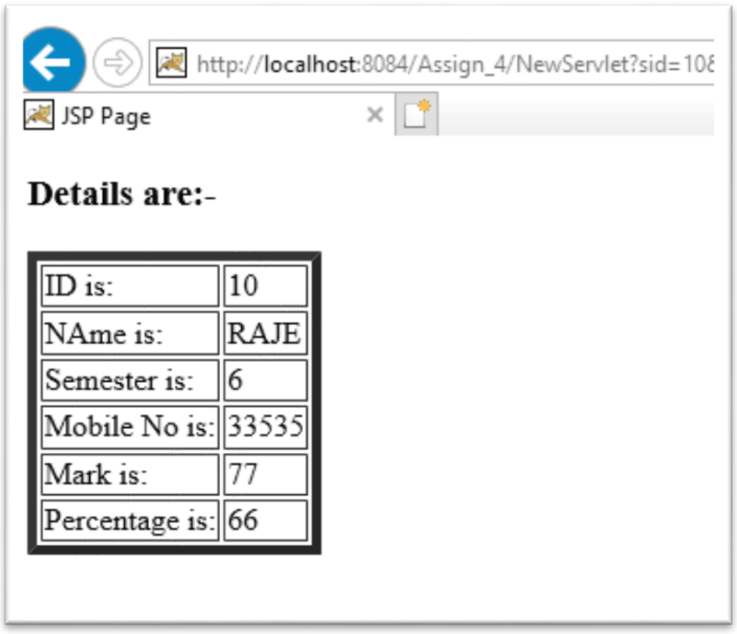
student.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>

    <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>JSP Page</title>

    </head>

    <body>
    <h3>Details are:-</h3>
    <table border='5'>
       <tr><td>ID is:</td><td>${student.ID}</td></tr>

       <tr><td>NAme is:</td><td>${student.NAME}</td></tr>
       <tr><td>Semester is:</td><td>${student.SEM}</td></tr>
       <tr><td>Mobile No is:</td><td>${student.MOBILE}</td></tr>

       <tr><td>Mark is:</td><td>${student.MARK}</td></tr>
       <tr><td>Percentage is:</td><td>${student.PERCENTAGE}</td></tr>

    </table>
</body>

</html>
```

Output



- **After Submitting Details:**



PRACTICAL 6

Implement java programs using JSTL

6.1 Write a JSP program using JSTL SQL taglib to display student details in tabular form by iterating through the database table student.

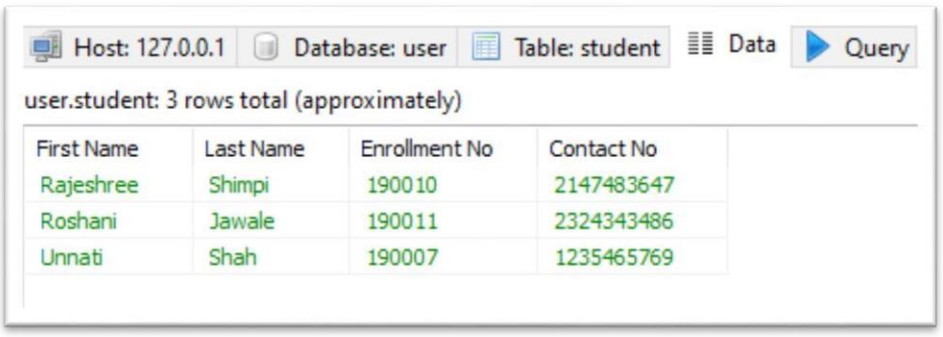
fetch_data.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>

<!DOCTYPE html>

<%@ page import="java.io.*,java.util.*,java.sql.*"%>

<%@ page import="javax.servlet.http.*,javax.servlet.*" %>

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

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

<html>

  <head>

    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

    <title>JSP Page</title>

  </head>

  <body>
    <sql:setDataSource var="db"
    driver="com.mysql.jdbc.Driver"url="jdbc:mysql://localhost:3306/user"
    user="root"  password="" />

     <sql:query dataSource="${db}" var="rs">
     SELECT * from student;
     </sql:query>

     <table border="2" width="100%">

     <tr>

     <th>First Name</th>
```

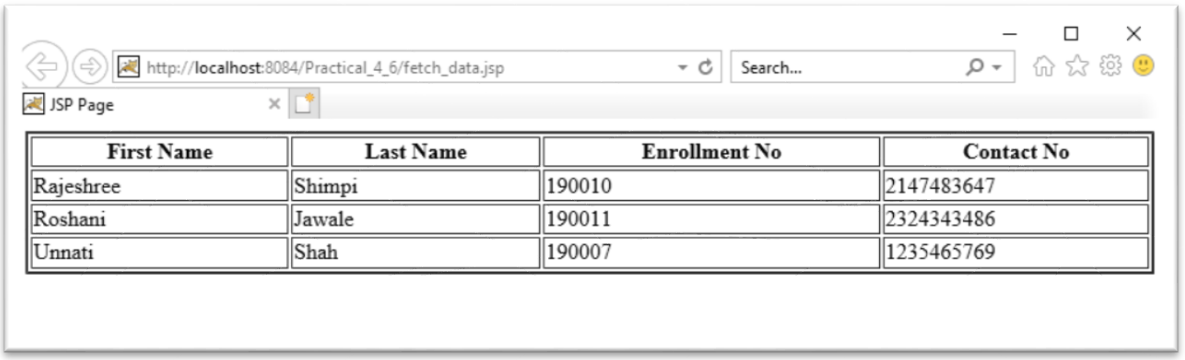
```
            <th>Last Name</th>
            <th>Enrollment No</th>
            <th>Contact No</th>
            </tr>
            <c:forEach var="table" items="${rs.rows}">
    <tr>
      <td><c:out value="${table.First_name}"/></td>
      <td><c:out value="${table.Last_name}"/></td>
      <td><c:out value="${table.Enrollment}"/></td>
      <td><c:out value="${table.Contact_no}"/></td>
      </tr>
      </c:forEach>
      </table>
  </body>
</html>
```

Output

- **Information stored in Database**



- **After fetching records through JSTL**



First Name	Last Name	Enrollment No	Contact No
Rajeshree	Shimpi	190010	2147483647
Roshani	Jawale	190011	2324343486
Unnati	Shah	190007	1235465769

PRACTICAL: 7

7.1 Design a web page that takes the Username from user and if it is a validusername prints “Welcome Username”. Use JSF to implement.

Program

index.xhtml

```
<?xml version='1.0' encoding='UTF-8' ?>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml"
      xmlns:h="http://xmlns.jcp.org/jsf/html"
      xmlns:f="http://xmlns.jcp.org/jsf/core">
    <h:head>
        <title>Facelet Title</title>

    </h:head>
    <h:body>

        <h:form>

        <h:outputLabel for="username">User Name</h:outputLabel>
         <h:inputText id="username" value="#{user.name}" required="true"
requiredMessage="Enter Username First...!!" >

        <f:validateRequired/>

        <f:validateLength  minimum="5"  maximum="20" />
        <f:validateRegex pattern="^([a-zA-Z]+(.)?[\s]*)$" />

        </h:inputText><br></br>

        <h:commandButton id="submit-button" value="Submit" action="response.xhtml"/>
        </h:form>

    </h:body>
</html>
```

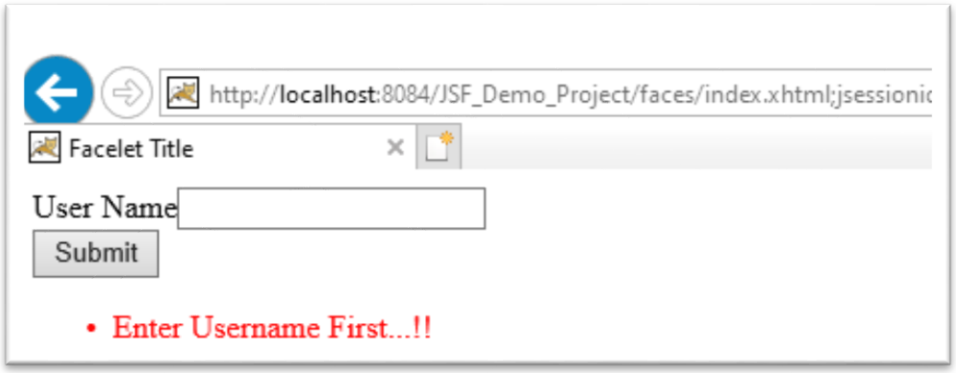
response.xhtml

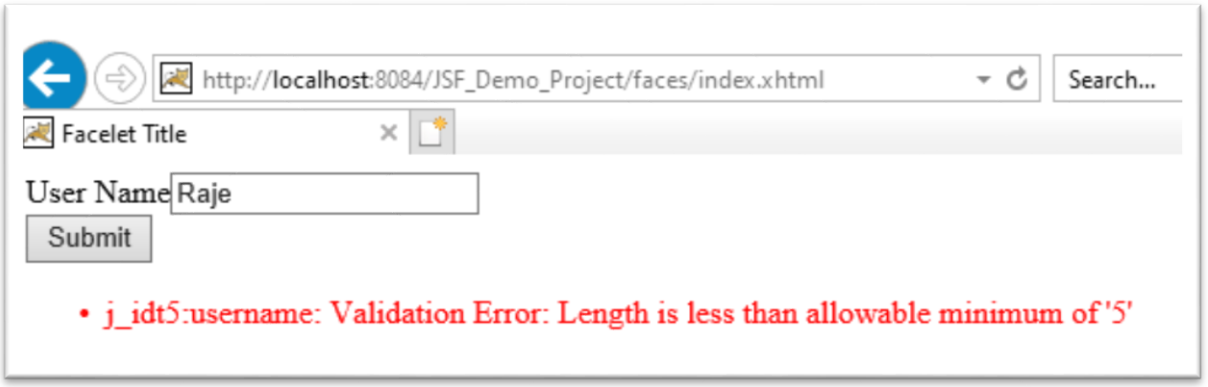
```
<?xml version='1.0' encoding='UTF-8' ?>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
  <html xmlns="http://www.w3.org/1999/xhtml"xmlns:h="http://xmlns.jcp.org/jsf/html">
  <h:head>
     <title>Welcome Page</title>

  </h:head>
  <h:body>
     <h2>Hello, <h:outputText value="#{user.name}"></h:outputText></h2>

  </h:body>

</html>
```

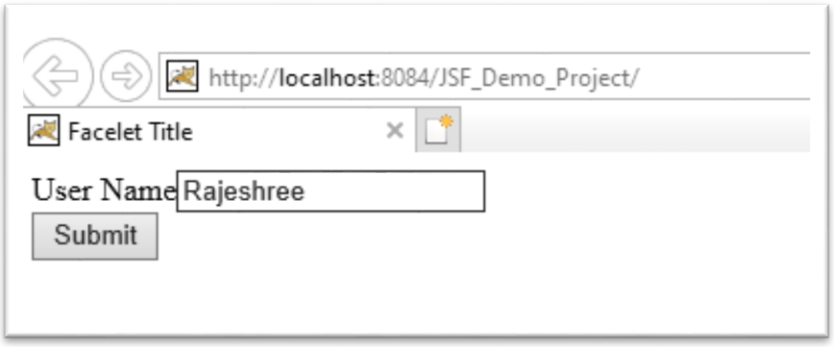
User.java

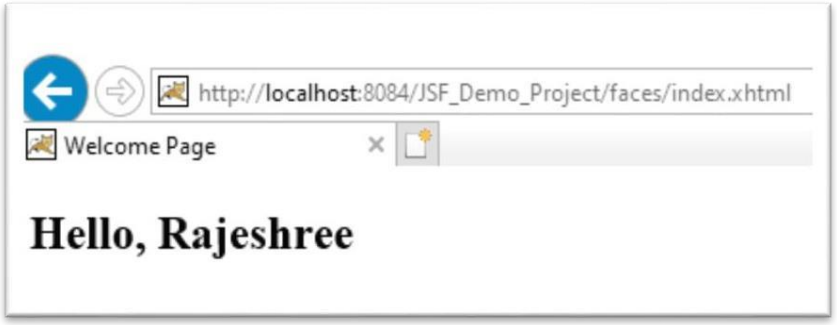
```
import com.sun.istack.internal.NotNull;
import javax.faces.bean.ManagedBean;
import javax.faces.bean.RequestScoped;
     @ManagedBean
 @RequestScopedpublic
          class User{
        String name;
  public String getName()
  {
    return name;
  }
  public void setName(String value)
  {
    this.name=value;
  }
}
```

Output:


http://localhost:8084/JSF_Demo_Project/faces/index.xhtml;jsessionic
Facelet Title
User Name
Submit
• Enter Username First...!!


http://localhost:8084/JSF_Demo_Project/faces/index.xhtml
Search...
Facelet Title
User Name Raje
Submit
• j_idt5:username: Validation Error: Length is less than allowable minimum of '5'


http://localhost:8084/JSF_Demo_Project/
Facelet Title
User Name Rajeshree
Submit


http://localhost:8084/JSF_Demo_Project/faces/index.xhtml
Welcome Page
Hello, Rajeshree

Practical: 8

8.1 : Write program to get all students data from Database using Hibernate. Write necessary xml files.

StoreData.java

```
import org.hibernate.Session;

import org.hibernate.SessionFactory;

import org.hibernate.Transaction;

import org.hibernate.cfg.Configuration;

import java.util.*;
import org.hibernate.Query;
public class StoreData {
    public static void main(String[] args) {

        //creating configuration object Configuration
        cfg=new Configuration();
        cfg.configure("hibernate.cfg.xml");
        //populates the data of the configuration file
        //creating seession factory object
        SessionFactory factory=cfg.buildSessionFactory();

        //creating session object
        Session session=factory.openSession();
        //creating transaction object String hql = "FROM Employee";
    Query query = session.createQuery(hql);List
    results = query.list();
          //Employee e1=(Employee)results.get(0);Iterator it = results.iterator();
           System.out.println("id\tfirstname\tlastname");
           System.out.println("==================================");
           while(it.hasNext()){
           Employee e1=(Employee) it.next();
    System.out.print(e1.getId()+"\t");
    System.out.print(e1.getFirstname()+"\t");
```

```
    System.out.print("\t"+e1.getLastname());
    System.out.println("");
          }
         Transaction t=session.beginTransaction();session.close();
 }
}
```

Employee.java

```
public class Employee {

private int id;
    private String firstname;
    private String lastname;
     int getId(){
        return id;
    }
    String getFirstname(){
    return firstname;
    }

    String getLastname(){

    return lastname;
    }
    void setId(int id){
        this.id=id;
    }

    void setFirstname(String firstname){
        this.firstname=firstname;
    }
    void setLastname(String lastname){
        this.lastname=lastname;
    }
}
```

employee.hbm.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE hibernate-mapping PUBLIC "-//Hibernate/Hibernate Mapping DTD 3.0//EN"
"http://hibernate.sourceforge.net/hibernate-mapping-3.0.dtd">

<hibernate-mapping>
   <class name="Employee" table="emp1000">
      <id name="id">

    <generator class="assigned"></generator>
   </id>
      <property name="firstname"></property>

      <property name="lastname"></property>
   </class>
</hibernate-mapping>
```

Hibernate.cfg.xml

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

<!DOCTYPE hibernate-configuration PUBLIC "-//Hibernate/Hibernate Configuration DTD3.0//EN"
"http://hibernate.sourceforge.net/hibernate-configuration-3.0.dtd">
<hibernate-configuration>
  <session-factory>

    <property name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property>

    <property name="hibernate.connection.driver_class">com.mysql.jdbc.Driver</property>
    <property
name="hibernate.connection.url">jdbc:mysql://localhost:3308/employee?zeroDateTimeBeha
vior=convertToNull</property>

    <property name="hibernate.connection.username">root</property>
    <mapping resource="employee.hbm.xml"/>
  </session-factory>

</hibernate-configuration>
```

Output:

```
C:\Program Files\Java\jdk1.8.0_241\bin\janak\sem6\hib>javac StoreData.java

C:\Program Files\Java\jdk1.8.0_241\bin\janak\sem6\hib>java StoreData
log4j:WARN No appenders could be found for logger (org.hibernate.cfg.Environment).
log4j:WARN Please initialize the log4j system properly.
id      firstname       lastname
==================================
1       emp1            emp
0       sanjeet         nikam
2       raj             bhavasr

C:\Program Files\Java\jdk1.8.0_241\bin\janak\sem6\hib>
```

8.2: Write Hibernate application to store customer records and retrieve thecustomer record including name, contactnumber, address.

Customer.java

```
public class Customer {
    private int id;
  private String firstName;
  private String lastName;
  private String c_number;
  private String address; public
  Customer() {
   public Customer(String fname, String lname, String c_number,String address){
   this.firstName = fname;
   this.lastName = lname;
    this.c_number = c_number;
   this.address = address;
  }
   public int getId(){
   return id;

  }

   public void setId( int id ){

   this.id = id;

  }
   public String getFirstName(){
   return firstName;

  }
   public void setFirstName( String first_name ){
   this.firstName = first_name;
```

```
}
   public String getLastName(){
   return lastName;
  }
    public void setLastName( String last_name ){
    this.lastName = last_name;
  }
    public String getc_number(){
    return c_number;
  }
    public void setc_number( String c_number ){
    this.c_number = c_number;
  }
 public String getAddress(){
 return address;
  }
    public void setAddress( String address ){
    this.address = address;
  }
}
```

Customers.hbm.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE hibernate-mapping PUBLIC "-//Hibernate/Hibernate Mapping DTD 3.0//EN"
"http://hibernate.sourceforge.net/hibernate-mapping-3.0.dtd">
<hibernate-mapping>
    <class name = "Customer" table = "customer">
```

```
    <meta attribute = "class-description">
    This class contains the students detail.
     </meta>
     <id name = "id" type = "int" column = "id">
      <generator class="native"/>
     </id>
     <property name = "firstName" column = "first_name" type = "string"/>
     <property name = "lastName" column = "last_name" type = "string"/>
    <property name = "c_number" column = "c_number" type = "string"/>
     <property name = "address" column = "address" type = "string"/>
  </class>
</hibernate-mapping>
```

ManageCustomer.java

```
import java.util.List;
import java.util.Date;
import java.util.Iterator;
import org.hibernate.HibernateException;
import org.hibernate.Session;
import org.hibernate.Transaction;
 import org.hibernate.SessionFactory;
import org.hibernate.cfg.Configuration;
public class ManageCustomer {
   private static SessionFactory factory;
    public static void main(String[] args) {
      try {
       factory = new Configuration().configure().buildSessionFactory();
      }
      catch (HibernateException ex) {
```

```
System.err.println("Failed to create sessionFactory object." + ex);
throw new ExceptionInInitializerError(ex);
}
ManageCustomer ME = new ManageCustomer();

/* Add few Customer records in database */

Integer stdID1 = ME.addCustomer("Arjav","Desai","4564787098","surat");

Integer stdID2 = ME.addCustomer("Tulsi", "Patel", "4564787098","navsari");

Integer stdID3 = ME.addCustomer("Parva", "Gurav", "4564787098","bardoli");
Integer stdID4 = ME.addCustomer("Darshit", "Desai", "4564787098","navsari");
Integer stdID5 = ME.addCustomer("Tejas", "Patel", "4564787098","surat");
/* List down all the Customer

*/ME.listCustomer();

/* Update Customer's records */

//ME.updateCustomer(stdID1, 105);
/* Delete an Customer from the database */
ME.deleteCustomer(stdID2);
/* List down new list of the Customer

*/ME.listCustomer(); }

/* Method to CREATE an Customer in the database */
public Integer addCustomer(String fname, String lname, String c_number,Stringaddress){
Session session = factory.openSession();
Transaction tx = null;Integer CustomerID =null;try {
tx = session.beginTransaction();
Customer Customer = new Customer(fname, lname, c_number, address);
CustomerID = (Integer) session.save(Customer);
tx.commit();
}
catch (HibernateException e) {
```

```
      if(tx!=null) tx.rollback();
      e.printStackTrace();
    }
    finally {
      session.close();
      }

     return CustomerID;
}
/* Method to READ all the Customer */
public void listCustomer( ){
Session session = factory.openSession();Transaction tx =null;
     try {
      tx = session.beginTransaction();
      List Customer = session.createQuery("FROM Customer").list();
      for(Iterator iterator = Customer.iterator(); iterator.hasNext();){
      Customer Customer1 = (Customer) iterator.next();
      System.out.print("First Name: " + Customer1.getFirstName());
      System.out.print("  Last Name: " + Customer1.getLastName());
         System.out.println(" Contact Number: " + Customer1.getc_number());
         System.out.println("Address:- " + Customer1.getAddress());
      }

      tx.commit();
    }
    catch (HibernateException e) {
    if(tx!=null) tx.rollback();
      e.printStackTrace();
    }
    finally {
      session.close();
      }
}
```

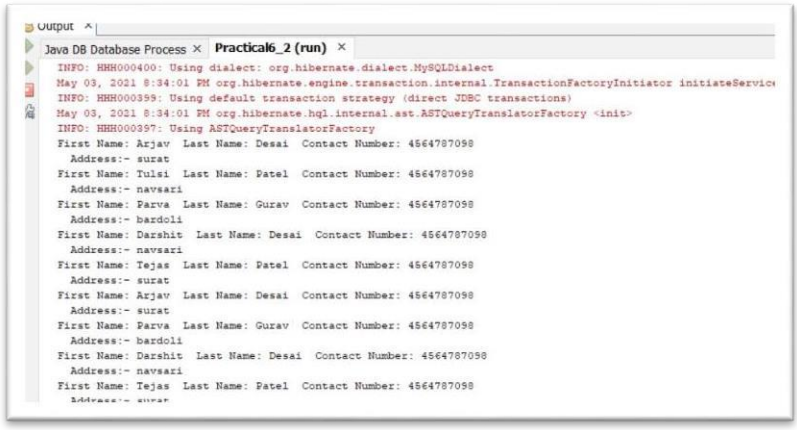
```
    public void deleteCustomer(Integer CustomerID){
      Session session = factory.openSession();
      Transaction tx = null;
      try {
       tx = session.beginTransaction();
       Customer Customer = (Customer)session.get(Customer.class, CustomerID);
       session.delete(Customer);
       tx.commit();
     } catch (HibernateException e) {
     if(tx!=null) tx.rollback();
       e.printStackTrace();
     }
     finally {
       session.close();
       }
  }
}
```

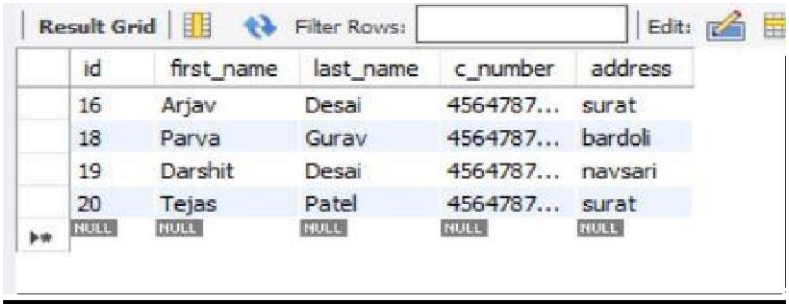
Hibernate.cfg.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE hibernate-configuration PUBLIC "-//Hibernate/Hibernate Configuration DTD
3.0//EN" "http://hibernate.sourceforge.net/hibernate-configuration-3.0.dtd">
<hibernate-configuration>
  <session-factory>
    <property name="hibernate.dialect">org.hibernate.dialect.MySQLDialect</property>
    <property name="hibernate.connection.driver_class">com.mysql.jdbc.Driver</property>
    <property name="hibernate.connection.url">jdbc:mysql://localhost:3306/customers</property>
    <property name="hibernate.connection.username">root</property>
    <property name="hibernate.connection.password">india</property>
```

```
    <mapping resource="Customers.hbm.xml"/>
  </session-factory>
</hibernate-configuration>
```

Output:





id	first_name	last_name	c_number	address
16	Arjav	Desai	4564787...	surat
18	Parva	Gurav	4564787...	bardoli
19	Darshit	Desai	4564787...	navsari
20	Tejas	Patel	4564787...	surat
NULL	NULL	NULL	NULL	NULL

PRACTICAL: 9

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

Program:

Index.html:

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"
xmlns:h="http://java.sun.com/jsf/html"
xmlns:f="http://java.sun.com/jsf/core">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1" />
<title>Index</title>
</head>
<h:body>
<f:view>
<h3>Enter Details</h3>
<h:form>
<table>
<tr>
<td>ID:</td>
<td><h:inputText value="#{bean.id}"/></td>
</tr>
<tr>

<td>Enrollment Number:</td>
```

```
<td><h:inputText value="#{bean.en}"/></td>
</tr>
<tr>
<td>Semester:</td>
<td><h:inputText value="#{bean.sem}"/></td>
</tr>
<tr>
<td>SPI:</td>
<td><h:inputText value="#{bean.spi}"/></td>
</tr>
</table>
<h:commandButton value="Submit" action="#{bean.submit}"/>
</h:form>
<br></br>
<h:outputText value="#{bean.data}" escape="false" />
</f:view>
</h:body>
</html>
```

Bean.java:

```
package jsfpackage;
import java.io.Serializable;
import javax.faces.bean.ManagedBean;import
java.sql.*;
@ManagedBean
public class bean implements Serializable {
private static final long serialVersionUID = 6529685098267757690L;
private int id;

private String en;
```

```
private int sem;
private float spi;
private String data = "";
public String submit() throws SQLException, ClassNotFoundException{
    Class.forName("com.mysql.jdbc.Driver");
    Connection con =
    DriverManager.getConnection("jdbc:mysql://127.0.0.1:3306/test?characterEncodin
    g=utf8&useSSL=false&useUnicode=true","root","root");
    PreparedStatement st = con.prepareStatement("insert into student values(?,?,?,?)");st.setInt(1,
    getId());
    st.setString(2, getEn());st.setInt(3,
    getSem()); st.setFloat(4, getSpi());st.execute();
    Statement stt = con.createStatement();
    ResultSet rs = stt.executeQuery("select * from student");
    this.data = "<table style=\"width:50%\" bgcolor=\"cyan\" border=\"1px\">
    <tr bgcolor=\"teal\">
    <th>Id</th>
    <th>Enrollment</th>
    <th>Semester</th>
    <th>SPI</th></tr>";
     while(rs.next()){
     int i = rs.getInt(1);
    String en = rs.getString(2);int sm =rs.getInt(3);
    float sp = rs.getFloat(4);

    this.data += "<tr>

    <td>"+i+"</td>

    <td>"+en+"</td>

    <td>"+sm+"</td>

    <td>"+sp+"</td></tr>";
```

```
}
this.data +="</table>";
 con.close();
return "index.xhtml";
}
public String getData(){
return this.data;
}
public int getId(){
return id;
}
public void setId(int id){
this.id = id;
}
public String getEn(){
return en;
}
public void setEn(String en) {
this.en = en;
}
public int getSem(){
return sem;
}
public void setSem(int sem) {
this.sem = sem;

}
  public float getSpi() {
  return spi;
}
  public void setSpi(float spi) {
  this.spi = spi;
```

```
}
}
```

Web.xml:

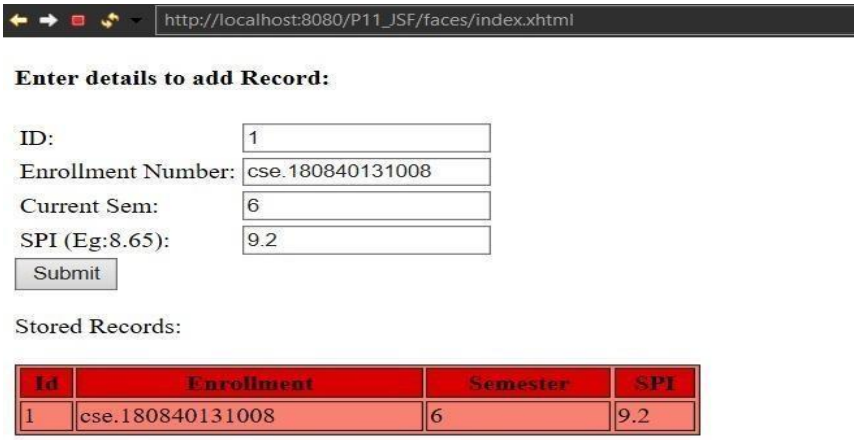
```
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
;http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd" id="WebApp_ID"version="3.1">
<display-name>P11 JSF</display-name>
<welcome-file-list>
<welcome-file>index.xhtml</welcome-file>
<welcome-file>index.htm</welcome-file>
<welcome-file>index.jsp</welcome-file>
<welcome-file>default.html</welcome-file>
<welcome-file>default.htm</welcome-file>
<welcome-file>default.jsp</welcome-file>
</welcome-file-list>
<servlet>
<servlet-name>Faces Servlet</servlet-name>
<servlet-class>javax.faces.webapp.FacesServlet</servlet-class>
<load-on-startup>1</load-on-startup>
</servlet>

<servlet-mapping>
<servlet-name>Faces Servlet</servlet-name>
<url-pattern>/faces/*</url-pattern>
</servlet-mapping>
<context-param>
<description>State saving method: 'client' or 'server' (=default). See JSFSpecification
2.5.2</description>
<param-name>javax.faces.STATE_SAVING_METHOD</param-name>
```

```
<param-value>client</param-value>
</context-param>
<context-param>
<param-name>javax.servlet.jsp.jstl.fmt.localizationContext</param-name>
<param-value>resources.application</param-value>
</context-param>
<listener>
<listener-class>com.sun.faces.config.ConfigureListener</listener-class>
</listener>
</web-app>
```

Faces-config.xml:

```
<?xml version="1.0" encoding="UTF-8"?>
<faces-config
xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
;http://xmlns.jcp.org/xml/ns/javaee/web-facesconfig_2_2.xsd"version="2.2">

<navigation-rule>
<from-view-id>/index.xhtml</from-view-id>
<navigation-case>
<from-outcome>index</from-outcome>
<to-view-id>/index.xhtml</to-view-id>
</navigation-case>
</navigation-rule>
<managed-bean>
<managed-bean-name>bean</managed-bean-name>
<managed-bean-class>jsfpackage.bean</managed-bean-class>
<managed-bean-scope>session</managed-bean-scope>
</managed-bean>
</faces-config>
```

Output:


http://localhost:8080/P11_JSF/faces/index.xhtml
Enter details to add Record:
ID: 1
Enrollment Number: cse.180840131008
Current Sem: 6
SPI (Eg:8.65): 9.2
Submit
Stored Records:
Id Enrollment Semester SPI
1 cse.180840131008 6 9.2