E-COMMERCE SHOPPING WEBSITE

A MINI PROJECT REPORT

Submitted by

DHAIRYA AUNDHIA

92200103268

RISHI PATEL

92200103288

BACHELOR OF ENGINEERING

in

Computer Engineering



Marwadi University, Rajkot
[OCTOBER,2023]



Marwadi University Rajkot

CERTIFICATE

This is to certify that the project report submitted along with the project entitled **E-commerce** shopping website has been carried out by **Dhairya Aundhia-92200103268 and Rishi**Patel -92200103288 under my guidance in partial fulfillment for the degree of Bachelor of Technology in Computer Engineering, 3rd Semester of Marwadi University, Rajkot during the academic year 2022-23.

Santushti Betgari Hardik Doshi

Internal Guide Head of the Department



Marwadi University Rajkot

DECLARATION

We hereby declare that the Mini Project report submitted along with the Project entitled

E-commerce shopping website submitted in partial fulfilment for the degree of Bachelor of Technology in Computer Engineering to Marwadi University, Rajkot, is a bonafide record of original project work carried out by us at Marwadi University under the supervision of **Santushti Betgeri** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

- 1. Dhairya Aundhia
- 2. Rishi Patel

List of Figures

Fig 1.1 Use case / Procedure Diagram	2
Fig 1.2 Activity / Process Diagram	5
Fig 2.1 Use case / Procedure Diagram	. 12
Fig 2.2 Activity / Process Diagram	. 15
Fig 2.3 Use case / Procedure Diagram	. 22
Fig 2.4 Activity / Process Diagram	. 25
Fig 3.1 Use case / Procedure Diagram	. 32
Fig 4.1 Activity / Process Diagram	. 35
Fig 4.2 Use case / Procedure Diagram	. 42
Fig 4.3 Activity / Process Diagram	. 43

List of Tables

Table 1.1 Popular Methods / Techniques	2
Table 1.2 User / Reading / Observation Table	5
Table 2.1 Popular Methods / Techniques	12
Table 2.2 User / Reading / Observation Table	15
Table 2.3 Popular Methods / Techniques	22
Table 2.4 User / Reading / Observation Table	25
Table 3.1 Popular Methods / Techniques	32
Table 4.1 User / Reading / Observation Table	35
Table 4.2 Popular Methods / Techniques	42
Table 4.3 User / Reading / Observation Table	43

Abbreviations

ALU Arithmetical & Logical Unit

SDLC Software Development Life Cycle

Table of Contents

Acknowledgement	i
Abstract	ii
List of Figures	iii
List of Tables	iv
List of Abbreviations	v
Table of Contents	vi
Chapter 1	1
1.1 Introduction to Java	2
1.1.1 Benefits of Java	3
1.2 Introduction to Swing/Servlet/JSP (depends on your project)	4
Chapter 2	8
2.1 Introduction to Project Topic	9
2.1.1 How to do	10
2.2 Drawbacks in Existing System	11
2.3 Advantages of Proposed System	12
2.4 Functional Requirements.	13
2.4.1 Tools	14
2.4.2 Front End and Back End	14
Chapter 3	15
3.1 Source code	14
Chapter 4	15
4.1 Screenshots	17
Chapter 5	15
4.1 Conclusion	17
4.2 Future Enhancement	17
References	40

CHAPTER 1

OVERVIEW OF JAVA

1.1 Introduction of Java

UNIT-1 JDBC

- JDBC is used to connect java application with database.
- It provides classes and interface to connect or communicate java application with database.
- JDBC is an API used to communicate java application to database in database independent and platform independent manner.

UNIT-3 SERVLET

- Servlet technology is used to create web application.
- Servlet technology is robust and scalable because of java launguage.
- There are many interfaces and classes in servlet API such as SERVLET, GENERIC SERVLER, HTTPSERVLET etc.

UNIT-4 JSP

- A JSP page consists of HTML tags and JSP tags.
- The JSP pages are easier to maintain and servlet because we can seprate designing and development logic.
- JSP server site scripting language.

CHAPTER 2 OVERVIEW OF PROJECT

2.1 Introduction of LMS

We are using servlet instead of CGI .the basic benefits of servlet are as follows:

- Better performance because it creates a thread for each request not process.
- Portability because it uses java language
- Robust
- Secure

2.2 Drawbacks of Existing System

- Limited accessbility
- Time consuming
- Security concerns
- Limited scalability
- Inefficient customer service
- Lack of data analytics and reporting

2.3 Advantages of Proposed System

- Enhanced Security
- Robust
- Dynamic
- Easy use and User Friendly

2.4 Functional Requirements

Transaction management:

• Supports adding and removing items from carts.

Profile management:

Enables user to update and delete their account.

2.4.1 Technology

JAVA

My SQL

HTML

CSS

BootStrap

JDBC

SERVLET

JSP

2.4.2 Front End and Back End

For styling we have used CSS and Bootstrap.

Front end:

We are using HTML as our primary programming language for front end in our E-commerce Shopping website. HTML provides varies tags and attributes such as video tag, SRC attribute, SVG, slider etc which helps us make our website responsive and interactive.

Back end:

We are using my SQL as DBMS for storing customer data, transaction records and other information by using JDBC.

We are also using Servlets and JSP.

CHAPTER 3

PROJECT SOURCE CODE

3.1 Function 1 Source Code

Login.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8"/>
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Login/SignUp</title>
    link
       rel="stylesheet"
       href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.4.2/css/all.min.css"
    link rel="stylesheet" href="css/login.css" type="text/css" />
  </head>
  <body>
    <div class="container" id="container">
       <div class="form-container sign-up-container">
         <form action="signup" method="post">
           <h1>Create Account</h1>
           <div class="social-container">
              <a href="#" class="social"><i class="fab fa-facebook-f"></i></a>
              <a href="#" class="social"><i class="fab fa-google-plus-g"></i></a>
              <a href="#" class="social"><i class="fab fa-linkedin-in"></i></a>
           </div>
           <span>or use your Mobile Number for registration/span>
```

```
<input type="text" placeholder="Name" name="name" />
    <input type="text" placeholder="Mobile Number" name="mo no" />
    <input type="email" placeholder="Email" name="email1" />
    <input type="password" placeholder="Password" name="password" />
    <input type="text" placeholder="Security Key" name="skey" />
    <button>Sign Up</button><br />
    <!-- <span>*Security key will be used to forgot password</span> -->
  </form>
</div>
<div class="form-container sign-in-container">
  <form action="login" method="post">
    <h1>Sign in</h1>
    <div class="social-container">
      <a href="#" class="social"><i class="fab fa-facebook-f"></i></a>
      <a href="#" class="social"><i class="fab fa-google-plus-g"></i></a>
      <a href="#" class="social"><i class="fab fa-linkedin-in"></i></a>
    </div>
    <span>or use your account</span>
    <input type="text" placeholder="Mobile Number" name="mo_no" />
    <input type="password" placeholder="Password" name="pwd" />
    <a href="forgot.html">Forgot your password?</a>
    <button>Sign In</button>
  </form>
</div>
<div class="overlay-container">
  <div class="overlay">
    <div class="overlay-panel overlay-left">
      <h1>Welcome Back!</h1>
      >
         To keep connected with us please login with your personal info
```

```
</div>
            <div class="overlay-panel overlay-right">
              <h1>Hello, Friend!</h1>
              Enter your personal details and start journey with us
              <button class="ghost" id="signUp">Sign Up</button>
            </div>
         </div>
       </div>
    </div>
    <script>
       const signUpButton = document.getElementById("signUp");
       const signInButton = document.getElementById("signIn");
       const container = document.getElementById("container");
       signUpButton.addEventListener("click", () => {
         container.classList.add("right-panel-active");
       });
       signInButton.addEventListener("click", () => {
         container.classList.remove("right-panel-active");
       });
    </script>
  </body>
</html>
Login.java
/*
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
```

<button class="ghost" id="signIn">Sign In

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.util.logging.Level;
import java.util.logging.Logger;
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
/**
* @author dhair
public class login extends HttpServlet {
  /**
   * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
   * methods.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
```

```
* @throws IOException if an I/O error occurs
   * @throws java.lang.ClassNotFoundException
   * @throws java.sql.SQLException
   */
  protected void processRequest(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException, ClassNotFoundException, SQLException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
       /* TODO output your page here. You may use following sample code. */
       out.println("<!DOCTYPE html>");
       out.println("<html>");
       out.println("<head>");
       out.println("<title>Login</title>");
       out.println("</head>");
       out.println("<body>");
       boolean value = false;
       String s1 = request.getParameter("mo no");
       String s2 = request.getParameter("pwd");
       Class.forName("com.mysql.jdbc.Driver");
       Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/project?", "root", "");
       String sql = "select * from user where mono=? and password = ?";
       PreparedStatement ps = con.prepareStatement(sql);
       ps.setString(1, s1);
       ps.setString(2, s2);
       ResultSet rs = ps.executeQuery();
       value = rs.next();
       if (value) {
         HttpSession hs = request.getSession();
         hs.setAttribute("mono", s1);
```

```
RequestDispatcher rd = request.getRequestDispatcher("index.jsp");
         rd.forward(request, response);
       } else {
         RequestDispatcher rd = request.getRequestDispatcher("login.html");
         out.println("<h1>Invalid Username or Password</h1><br>");
         rd.include(request, response);
       }
       out.println("</body>");
       out.println("</html>");
    }
  }
  // <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on
the left to edit the code.">
  /**
   * Handles the HTTP <code>GET</code> method.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  @Override
  protected void doGet(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException {
    try {
       processRequest(request, response);
    } catch (ClassNotFoundException ex) {
       Logger.getLogger(Servlet1.class.getName()).log(Level.SEVERE, null, ex);
    } catch (SQLException ex) {
```

```
Logger.getLogger(Servlet1.class.getName()).log(Level.SEVERE, null, ex);
  }
}
/**
* Handles the HTTP <code>POST</code> method.
* @param request servlet request
* @param response servlet response
* @throws ServletException if a servlet-specific error occurs
* @throws IOException if an I/O error occurs
*/
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
  try {
    processRequest(request, response);
  } catch (ClassNotFoundException ex) {
    Logger.getLogger(Servlet1.class.getName()).log(Level.SEVERE, null, ex);
  } catch (SQLException ex) {
    Logger.getLogger(Servlet1.class.getName()).log(Level.SEVERE, null, ex);\\
}
* Returns a short description of the servlet.
* @return a String containing servlet description
*/
@Override
public String getServletInfo() {
```

```
return "Short description";
  }// </editor-fold>
  private static class Servlet1 {
     public Servlet1() {
  }
}
Signup.java
/*
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
*/
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.util.logging.Level;
import java.util.logging.Logger;
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
```

```
import javax.servlet.http.HttpSession;
/**
* @author dhair
public class signup extends HttpServlet {
  /**
   * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
   * methods.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  protected void processRequest(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException, ClassNotFoundException, SQLException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
       /* TODO output your page here. You may use following sample code. */
       out.println("<!DOCTYPE html>");
       out.println("<html>");
       out.println("<head>");
       out.println("<title>SignUp</title>");
       out.println("</head>");
       out.println("<body>");
       boolean value = false;
       String s1 = request.getParameter("name");
       String s2 = request.getParameter("mo no");
```

```
String s3 = request.getParameter("email1");
       String s4 = request.getParameter("password");
       String s5 = request.getParameter("skey");
       Class.forName("com.mysql.jdbc.Driver");
       Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/project?", "root", "");
       String sql = "insert into user values(?,?,?,?,?)";
       PreparedStatement ps = con.prepareStatement(sql);
       ps.setString(1, s1);
       ps.setString(2, s2);
       ps.setString(3, s3);
       ps.setString(4, s4);
       ps.setString(5, s5);
       int i = ps.executeUpdate();
       out.print(i);
       if (i == 1) {
         RequestDispatcher rd = request.getRequestDispatcher("login.html");
         out.println("<h1>Successfully Signup Now You are ready for
login</h1><br>");
         rd.include(request, response);
       } else {
         RequestDispatcher rd = request.getRequestDispatcher("login.html");
         out.println("<h1>User Already Added !!</h1><br>");
         rd.include(request, response);
       out.println("</body>");
       out.println("</html>");
    }
  }
```

```
// <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on
the left to edit the code.">
  /**
   * Handles the HTTP <code>GET</code> method.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  @Override
  protected void doGet(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException {
    try {
       processRequest(request, response);
    } catch (ClassNotFoundException | SQLException ex) {
       Logger.getLogger(signup.class.getName()).log(Level.SEVERE, null, ex);
    }
  }
  /**
   * Handles the HTTP <code>POST</code> method.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  @Override
  protected void doPost(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException {
```

```
try {
       processRequest(request, response);
     } catch (ClassNotFoundException ex) {
       Logger.getLogger(signup.class.getName()).log(Level.SEVERE, null, ex);
     } catch (SQLException ex) {
       Logger.getLogger(signup.class.getName()).log(Level.SEVERE, null, ex);
    }
  }
  /**
   * Returns a short description of the servlet.
   * @return a String containing servlet description
   */
  @Override
  public String getServletInfo() {
    return "Short description";
  }// </editor-fold>
Item(1-8)
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
*/
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
```

}

```
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.util.logging.Level;
import java.util.logging.Logger;
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
/**
* @author dhair
public class item1 extends HttpServlet {
  /**
   * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
   * methods.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   * @throws java.lang.ClassNotFoundException
   * @throws java.sql.SQLException
   */
  protected void processRequest(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException, ClassNotFoundException, SQLException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
```

```
/* TODO output your page here. You may use following sample code. */
       out.println("<!DOCTYPE html>");
       out.println("<html>");
       out.println("<head>");
       out.println("<title>item1</title>");
       out.println("</head>");
       out.println("<body>");
       Class.forName("com.mysql.jdbc.Driver");
       Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/project", "root", "");
       PreparedStatement ps = con.prepareCall("insert into item values(?,?)");
       ps.setInt(1, 1);
       ps.setString(2, "Gray Top");
       int i = ps.executeUpdate();
       if (i == 1) {
         RequestDispatcher rd = request.getRequestDispatcher("index.jsp");
         rd.forward(request, response);
       out.println("</body>");
       out.println("</html>");
    }
  }
  // <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on
the left to edit the code.">
  /**
   * Handles the HTTP <code>GET</code> method.
   * @param request servlet request
```

```
* @param response servlet response
* @throws ServletException if a servlet-specific error occurs
* @throws IOException if an I/O error occurs
*/
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
  try {
    processRequest(request, response);
  } catch (ClassNotFoundException ex) {
    Logger.getLogger(item1.class.getName()).log(Level.SEVERE, null, ex);
  } catch (SQLException ex) {
    Logger.getLogger(item1.class.getName()).log(Level.SEVERE, null, ex);
  }
}
* Handles the HTTP <code>POST</code> method.
* @param request servlet request
* @param response servlet response
* @throws ServletException if a servlet-specific error occurs
* @throws IOException if an I/O error occurs
*/
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
  try {
    processRequest(request, response);
  } catch (ClassNotFoundException ex) {
    Logger.getLogger(item1.class.getName()).log(Level.SEVERE, null, ex);
```

```
} catch (SQLException ex) {
       Logger.getLogger(item1.class.getName()).log(Level.SEVERE, null, ex);
    }
  }
  /**
   * Returns a short description of the servlet.
   * @return a String containing servlet description
   */
  @Override
  public String getServletInfo() {
    return "Short description";
  }// </editor-fold>
}
Remove.java
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
*/
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.logging.Level;
import java.util.logging.Logger;
```

```
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
/**
* @author dhair
*/
public class remove extends HttpServlet {
  /**
   * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
   * methods.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  protected void processRequest(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException, ClassNotFoundException, SQLException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
       /* TODO output your page here. You may use following sample code. */
       out.println("<!DOCTYPE html>");
       out.println("<html>");
       out.println("<head>");
       out.println("<title>Servlet remove</title>");
       out.println("</head>");
```

```
out.println("<body>");
       Class<?> forName = Class.forName("com.mysql.jdbc.Driver");
       Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/project", "root", "");
       Statement st = con.createStatement();
       st.executeUpdate("delete from item");
       RequestDispatcher rd = request.getRequestDispatcher("cart.jsp");
       rd.forward(request, response);
       out.println("</body>");
       out.println("</html>");
    }
  }
  // <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on
the left to edit the code.">
  /**
   * Handles the HTTP <code>GET</code> method.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  @Override
  protected void doGet(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException {
    try {
       processRequest(request, response);
```

```
} catch (ClassNotFoundException ex) {
    Logger.getLogger(remove.class.getName()).log(Level.SEVERE, null, ex);
  } catch (SQLException ex) {
    Logger.getLogger(remove.class.getName()).log(Level.SEVERE, null, ex);
}
/**
* Handles the HTTP <code>POST</code> method.
* @param request servlet request
* @param response servlet response
* @throws ServletException if a servlet-specific error occurs
* @throws IOException if an I/O error occurs
*/
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
  try {
    processRequest(request, response);
  } catch (ClassNotFoundException ex) {
    Logger.getLogger(remove.class.getName()).log(Level.SEVERE, null, ex);
  } catch (SQLException ex) {
    Logger.getLogger(remove.class.getName()).log(Level.SEVERE, null, ex);
}
* Returns a short description of the servlet.
* @return a String containing servlet description
```

```
*/
  @Override
  public String getServletInfo() {
    return "Short description";
  }// </editor-fold>
}
User.jsp:
<%--
  Document: user
  Created on: Oct 20, 2023, 10:48:52 PM
          : dhair
  Author
--%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@page import="java.sql.*" %>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>user Pg</title>
    link
       rel="stylesheet"
       href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.4.2/css/all.min.css"
       />
    <!--<li>rel="stylesheet"
href="C:\Users\dhair\OneDrive\Desktop\AJT Project\web\css\forgot.css" />-->
    <style>
       @import url("https://fonts.googleapis.com/css?family=Montserrat:400,800");
```

```
box-sizing: border-box;
body {
  background: #f6f5f7;
  display: flex;
  justify-content: center;
  align-items: center;
  flex-direction: column;
  font-family: "Montserrat", sans-serif;
  height: 100vh;
  margin: -20px 0 50px;
}
h1 {
  font-weight: bold;
  margin: 0;
}
h2 {
  text-align: center;
p {
  font-size: 14px;
  font-weight: 100;
  line-height: 20px;
  letter-spacing: 0.5px;
  margin: 20px 0 30px;
```

```
span {
  font-size: 12px;
a {
  color: #333;
  font-size: 14px;
  text-decoration: none;
  margin: 15px 0;
button,.btn {
  border-radius: 20px;
  border: 1px solid #e5345b;
  background-color: #e5345b;
  color: #ffffff;
  font-size: 12px;
  font-weight: bold;
  padding: 12px 45px;
  letter-spacing: 1px;
  text-transform: uppercase;
  transition: transform 80ms ease-in;
}
button:active,.btn:active {
  transform: scale(0.85);
}
form {
  background-color: #ffffff;
```

```
display: flex;
  align-items: center;
  justify-content: center;
  flex-direction: column;
  padding: 0 50px;
  height: 100%;
  text-align: center;
}
input {
  background-color: #eee;
  border: none;
  padding: 12px 15px;
  margin: 8px 0;
  width: 100%;
}
.container {
  background-color: #fff;
  border-radius: 10px;
  box-shadow: 0 14px 28px rgba(0, 0, 0, 0.25), 0 10px 10px rgba(0, 0, 0, 0.22);
  position: relative;
  overflow: hidden;
  width: 700px;
  max-width: 100%;
  min-height: 700px;
}
.form-container {
  position: absolute;
  top: 45px;
```

```
height: 80%;
         transition: all 0.6s ease-in-out;
       }
       .sign-in-container {
         top: 45px;
         left: 158px;
       }
    </style>
  </head>
  <body>
    <%
       String s = (String) session.getAttribute("mono");
       if (s == null) {
         RequestDispatcher rd = request.getRequestDispatcher("login.html");
         rd.forward(request, response);
       String mono = (String) session.getAttribute("mono");
       Class.forName("com.mysql.jdbc.Driver");
       Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/project", "root", "");
       Statement st = con.createStatement();
       ResultSet res = st.executeQuery("select * from user where mono="" + mono + """);
       if (res.next()) {
    %>
    <div class="container" id="container">
       <div class="form-container sign-in-container">
```

```
<form action="index.html" method="post">
           <h1 style="color: #e5345b">Welcome <%=res.getString(1)%></h1><br><br>
           <h3>Mobile no. is : <%= res.getString(2)%></h3>
           <h3>Email is : <%= res.getString(3)%></h3>
           <h3>Password is: <%= res.getString(4)%></h3>
           <h3>Security key is : <%= res.getString(5)%></h3><br><br><br>
           <a href="update.html" class="btn">Update Info</a>
           <a href="logout" class="btn">Logout</a>
           <h4><a href="delete.html" class="btn">Delete User</a></h4>
         </form>
      </div>
    </div>
    <%}
    %>
  </body>
</html>
Update.jsp:
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Login</title>
    <style>
      @import url("https://fonts.googleapis.com/css?family=Montserrat:400,800");
```

```
box-sizing: border-box;
}
body {
  background: #f6f5f7;
  display: flex;
  justify-content: center;
  align-items: center;
  flex-direction: column;
  font-family: "Montserrat", sans-serif;
  height: 100vh;
  margin: -20px 0 50px;
}
h1 {
  font-weight: bold;
  margin: 0;
}
h2 {
  text-align: center;
}
p {
  font-size: 14px;
  font-weight: 100;
  line-height: 20px;
  letter-spacing: 0.5px;
  margin: 20px 0 30px;
```

```
}
span {
  font-size: 12px;
a {
  color: #333;
  font-size: 14px;
  text-decoration: none;
  margin: 15px 0;
}
button {
  border-radius: 20px;
  border: 1px solid #e5345b;
  background-color: #e5345b;
  color: #ffffff;
  font-size: 12px;
  font-weight: bold;
  padding: 12px 45px;
  letter-spacing: 1px;
  text-transform: uppercase;
  transition: transform 80ms ease-in;
button:active {
  transform: scale(0.85);
}
form {
  background-color: #ffffff;
```

```
display: flex;
  align-items: center;
  justify-content: center;
  flex-direction: column;
  padding: 0 50px;
  height: 100%;
  text-align: center;
}
input {
  background-color: #eee;
  border: none;
  padding: 12px 15px;
  margin: 8px 0;
  width: 100%;
}
.container {
  background-color: #fff;
  border-radius: 10px;
  box-shadow: 0 14px 28px rgba(0, 0, 0, 0.25),
    0 10px 10px rgba(0, 0, 0, 0.22);
  position: relative;
  overflow: hidden;
  width: 700px;
  max-width: 100%;
  min-height: 550px;
}
.form-container \{
  position: absolute;
```

```
top: 45px;
         height: 80%;
         transition: all 0.6s ease-in-out;
       }
       .sign-in-container {
         top: 45px;
         left: 158px;
       }
    </style>
  </head>
  <body>
    <div class="container" id="container">
       <div class="form-container sign-in-container">
         <form action="update" method="post">
           <h1>Update Profile</h1>
           <br/>br /><br/>
           <input type="text" placeholder="Update Name" name="name" />
           <input type="email" placeholder="Update email" name="email1" />
           <input type="password" placeholder="Enter new password" name="pwd" />
           <br >
           <button>Update</button>
         </form>
       </div>
    </div>
  </body>
</html>
Update.java:
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
```

```
* and open the template in the editor.
*/
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.util.logging.Level;
import java.util.logging.Logger;
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
/**
* @author dhair
public class update extends HttpServlet {
  /**
   * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
   * methods.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
```

```
* @throws IOException if an I/O error occurs
   * @throws java.lang.ClassNotFoundException
   * @throws java.sql.SQLException
   */
  protected void processRequest(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException, ClassNotFoundException, SQLException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
       /* TODO output your page here. You may use following sample code. */
       out.println("<!DOCTYPE html>");
       out.println("<html>");
       out.println("<head>"):
       out.println("<title>Update</title>");
       out.println("</head>");
       out.println("<body>");
       boolean value = false;
       HttpSession hs = request.getSession(false);
       String s = (String) hs.getAttribute("mono");
       String s1 = request.getParameter("name");
       String s2 = request.getParameter("email1");
       String s3 = request.getParameter("pwd");
       Class.forName("com.mysql.jdbc.Driver");
       Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/project?", "root", "");
       String sql = "update user set name=?,email=?,password=? where mono=?";
       PreparedStatement ps = con.prepareStatement(sql);
       ps.setString(1, s1);
       ps.setString(2, s2);
       ps.setString(3, s3);
       ps.setString(4, s);
```

```
int i = ps.executeUpdate();
       if (i == 1) {
         RequestDispatcher rd = request.getRequestDispatcher("login.html");
         hs.removeAttribute("mono");
         out.println("<h1>Profile Successfully Updated</h1><br>");
         rd.include(request, response);
       } else {
         RequestDispatcher rd = request.getRequestDispatcher("update.html");
         out.println("<h1>Wrong Credentials!</h1><br>");
         rd.include(request, response);
       }
       out.println("</body>");
       out.println("</html>");
    }
  }
  // <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on
the left to edit the code.">
  /**
   * Handles the HTTP <code>GET</code> method.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  @Override
  protected void doGet(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException {
    try {
```

```
processRequest(request, response);
  } catch (ClassNotFoundException | SQLException ex) {
    Logger.getLogger(update.class.getName()).log(Level.SEVERE, null, ex);
}
/**
* Handles the HTTP <code>POST</code> method.
* @param request servlet request
* @param response servlet response
* @throws ServletException if a servlet-specific error occurs
* @throws IOException if an I/O error occurs
*/
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
  try {
    processRequest(request, response);
  } catch (ClassNotFoundException | SQLException ex) {
    Logger.getLogger(update.class.getName()).log(Level.SEVERE, null, ex);
}
* Returns a short description of the servlet.
* @return a String containing servlet description
*/
@Override
public String getServletInfo() {
```

```
return "Short description";
  }// </editor-fold>
}
Logout.java:
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
*/
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;
import javax.servlet.http.HttpSession;
/**
* @author dhair
*/
public class logout extends HttpServlet {
  /**
   * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
   * methods.
   * @param request servlet request
```

```
* @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  @Override
  protected void doGet(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
       HttpSession session = request.getSession(false);
       session.removeAttribute("mono");
       session.invalidate();
//
        response.sendRedirect("login.html");
       RequestDispatcher rd = request.getRequestDispatcher("login.html");
       out.println("<h1>You Have Successfully Logged Out</h1><br/>br><br/>");
       rd.include(request, response);
    }
  }
Delete.html:
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8"/>
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Login</title>
    <style>
       @import url("https://fonts.googleapis.com/css?family=Montserrat:400,800");
       * {
```

```
box-sizing: border-box;
}
body {
  background: #f6f5f7;
  display: flex;
  justify-content: center;
  align-items: center;
  flex-direction: column;
  font-family: "Montserrat", sans-serif;
  height: 100vh;
  margin: -20px 0 50px;
}
h1 {
  font-weight: bold;
  margin: 0;
}
h2 {
  text-align: center;
p {
  font-size: 14px;
  font-weight: 100;
  line-height: 20px;
  letter-spacing: 0.5px;
  margin: 20px 0 30px;
```

```
span {
  font-size: 12px;
}
a {
  color: #333;
  font-size: 14px;
  text-decoration: none;
  margin: 15px 0;
}
button {
  border-radius: 20px;
  border: 1px solid #e5345b;
  background-color: #e5345b;
  color: #ffffff;
  font-size: 12px;
  font-weight: bold;
  padding: 12px 45px;
  letter-spacing: 1px;
  text-transform: uppercase;
  transition: transform 80ms ease-in;
button:active {
  transform: scale(0.85);
}
form {
  background-color: #ffffff;
  display: flex;
  align-items: center;
```

```
justify-content: center;
  flex-direction: column;
  padding: 0 50px;
  height: 100%;
  text-align: center;
}
input {
  background-color: #eee;
  border: none;
  padding: 12px 15px;
  margin: 8px 0;
  width: 100%;
.container {
  background-color: #fff;
  border-radius: 10px;
  box-shadow: 0\ 14px\ 28px\ rgba(0,\ 0,\ 0,\ 0.25),
    0 10px 10px rgba(0, 0, 0, 0.22);
  position: relative;
  overflow: hidden;
  width: 700px;
  max-width: 100%;
  min-height: 550px;
}
.form-container {
  position: absolute;
  top: 45px;
  height: 80%;
```

```
}
       .sign-in-container {
         top: 45px;
         left: 158px;
       }
    </style>
  </head>
  <body>
    <div class="container" id="container">
       <div class="form-container sign-in-container">
         <form action="delete" method="post">
            <h1 style="color: #e5345b">Delete Account</h1>
            <br /><br />
            <span>*Account will be permanently deleted.</span><br/>br />
            <input type="text" placeholder="Mobile Number" name="mo_no"/>
            <input type="text" placeholder="Enter Security Key" name="skey" />
            <input type="password" placeholder="Enter password" name="pwd" />
            <br/>>
            <button>Confirm</button>
         </form>
       </div>
    </div>
  </body>
</html>
Delete.java
/*
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
```

transition: all 0.6s ease-in-out;

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.util.logging.Level;
import java.util.logging.Logger;
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
/**
* @author dhair
public class delete extends HttpServlet {
  /**
   * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
   * methods.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
```

* @throws IOException if an I/O error occurs

```
*/
  protected void processRequest(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException, ClassNotFoundException, SQLException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
       /* TODO output your page here. You may use following sample code. */
       out.println("<!DOCTYPE html>");
       out.println("<html>");
       out.println("<head>");
       out.println("<title>Delete</title>");
       out.println("</head>");
       out.println("<body>");
       HttpSession hs = request.getSession(false);
       String s1 = request.getParameter("mo no");
       String s2 = request.getParameter("skey");
       String s3 = request.getParameter("pwd");
       Class.forName("com.mysql.jdbc.Driver");
       Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/project?", "root", "");
       String sql = "delete from user where mono=? and skey=? and password = ?";
       PreparedStatement ps = con.prepareStatement(sql);
       ps.setString(1, s1);
       ps.setString(2, s2);
       ps.setString(3, s3);
       int i = ps.executeUpdate();
       if (i == 1) {
         RequestDispatcher rd = request.getRequestDispatcher("login.html");
         hs.removeAttribute("mono");
```

```
out.println("<h1>User Deleted Successfully</h1><br>"
         );
         rd.include(request, response);
       } else {
         RequestDispatcher rd = request.getRequestDispatcher("delete.html");
         out.println("<h1>Wrong Credentials</h1><br>"
         );
         rd.include(request, response);
       }
       out.println("</body>");
       out.println("</html>");
    }
  }
  // <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on
the left to edit the code.">
  /**
   * Handles the HTTP <code>GET</code> method.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  @Override
  protected void doGet(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException {
    try {
       processRequest(request, response);
```

```
} catch (ClassNotFoundException ex) {
    Logger.getLogger(delete.class.getName()).log(Level.SEVERE, null, ex);
  } catch (SQLException ex) {
    Logger.getLogger(delete.class.getName()).log(Level.SEVERE, null, ex);
}
/**
* Handles the HTTP <code>POST</code> method.
* @param request servlet request
* @param response servlet response
* @throws ServletException if a servlet-specific error occurs
* @throws IOException if an I/O error occurs
*/
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
  try {
    processRequest(request, response);
  } catch (ClassNotFoundException ex) {
    Logger.getLogger(delete.class.getName()).log(Level.SEVERE, null, ex);
    Logger.getLogger(delete.class.getName()).log(Level.SEVERE, null, ex);
}
* Returns a short description of the servlet.
* @return a String containing servlet description
```

```
*/
  @Override
  public String getServletInfo() {
    return "Short description";
  }// </editor-fold>
}
Forgot.html:
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Login</title>
    <style>
       @import url("https://fonts.googleapis.com/css?family=Montserrat:400,800");
         box-sizing: border-box;
       body {
         background: #f6f5f7;
         display: flex;
         justify-content: center;
         align-items: center;
         flex-direction: column;
         font-family: "Montserrat", sans-serif;
         height: 100vh;
         margin: -20px 0 50px;
       }
```

```
h1 {
  font-weight: bold;
  margin: 0;
h2 {
  text-align: center;
p {
  font-size: 14px;
  font-weight: 100;
  line-height: 20px;
  letter-spacing: 0.5px;
  margin: 20px 0 30px;
span {
  font-size: 12px;
}
a {
  color: #333;
  font-size: 14px;
  text-decoration: none;
  margin: 15px 0;
}
button {
  border-radius: 20px;
```

```
border: 1px solid #e5345b;
  background-color: #e5345b;
  color: #ffffff;
  font-size: 12px;
  font-weight: bold;
  padding: 12px 45px;
  letter-spacing: 1px;
  text-transform: uppercase;
  transition: transform 80ms ease-in;
button:active {
  transform: scale(0.85);
}
form {
  background-color: #ffffff;
  display: flex;
  align-items: center;
  justify-content: center;
  flex-direction: column;
  padding: 0 50px;
  height: 100%;
  text-align: center;
input {
  background-color: #eee;
  border: none;
  padding: 12px 15px;
  margin: 8px 0;
  width: 100%;
```

```
}
    .container {
       background-color: #fff;
       border-radius: 10px;
       box-shadow: 0 14px 28px rgba(0, 0, 0, 0.25), 0 10px 10px rgba(0, 0, 0, 0.22);
       position: relative;
       overflow: hidden;
       width: 700px;
       max-width: 100%;
       min-height: 550px;
     }
     .form-container {
       position: absolute;
       top: 45px;
       height: 80%;
       transition: all 0.6s ease-in-out;
     }
     .sign-in-container {
       top: 45px;
       left: 158px;
  </style>
</head>
<body>
  <div class="container" id="container">
     <div class="form-container sign-in-container">
       <form action="forgot" method="post">
```

```
<h1>Forgot Password</h1>
            <br/>br /><br/>
            <input type="text" placeholder="Enter Mobile Number" name="mono" />
            <input type="text" placeholder="Enter Security Key" name="skey" />
            <input type="password" placeholder="Enter new password" name="pwd"/>
            <input type="password" placeholder="Confirm new password" />
            <br/>br />
            <button>Confirm</button>
         </form>
       </div>
    </div>
  </body>
</html>
Forgot.java:
* To change this license header, choose License Headers in Project Properties.
* To change this template file, choose Tools | Templates
* and open the template in the editor.
*/
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.util.logging.Level;
import java.util.logging.Logger;
import javax.servlet.RequestDispatcher;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
```

```
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
/**
* @author dhair
public class forgot extends HttpServlet {
  /**
   * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
   * methods.
   * @param request servlet request
   * @param response servlet response
   * @throws ServletException if a servlet-specific error occurs
   * @throws IOException if an I/O error occurs
   */
  protected void processRequest(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException, ClassNotFoundException, SQLException {
    response.setContentType("text/html;charset=UTF-8");
    try (PrintWriter out = response.getWriter()) {
       /* TODO output your page here. You may use following sample code. */
       out.println("<!DOCTYPE html>");
       out.println("<html>");
       out.println("<head>");
       out.println("<title>Forgot</title>");
       out.println("</head>");
       out.println("<body>");
       String s1 = request.getParameter("mono");
```

```
String s2 = request.getParameter("skey");
       String s3 = request.getParameter("pwd");
       Class.forName("com.mysql.jdbc.Driver");
       Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/project?", "root", "");
       String sql = "update user set password=? where mono=? and skey=?";
       PreparedStatement ps = con.prepareStatement(sql);
       ps.setString(1, s3);
       ps.setString(2, s1);
       ps.setString(3, s2);
       int i = ps.executeUpdate();
       if (i == 1) {
         RequestDispatcher rd = request.getRequestDispatcher("login.html");
         out.println("<h1>Password has been successfully reset</h1><br>");
         rd.include(request, response);
       } else {
         RequestDispatcher rd = request.getRequestDispatcher("forgot.html");
         out.println("<h1>Wrong Credentials!</h1><br>");
         rd.include(request, response);
       }
       out.println("</body>");
       out.println("</html>");
    }
  }
  // <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on
the left to edit the code.">
```

```
* Handles the HTTP <code>GET</code> method.
* @param request servlet request
* @param response servlet response
* @throws ServletException if a servlet-specific error occurs
* @throws IOException if an I/O error occurs
*/
@Override
protected void doGet(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
  try {
    processRequest(request, response);
  } catch (ClassNotFoundException | SQLException ex) {
    Logger.getLogger(forgot.class.getName()).log(Level.SEVERE, null, ex);
}
/**
* Handles the HTTP <code>POST</code> method.
* @param request servlet request
* @param response servlet response
* @throws ServletException if a servlet-specific error occurs
* @throws IOException if an I/O error occurs
*/
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
  try {
    processRequest(request, response);
```

```
} catch (ClassNotFoundException ex) {
    Logger.getLogger(forgot.class.getName()).log(Level.SEVERE, null, ex);
} catch (SQLException ex) {
    Logger.getLogger(forgot.class.getName()).log(Level.SEVERE, null, ex);
}

/**

* Returns a short description of the servlet.

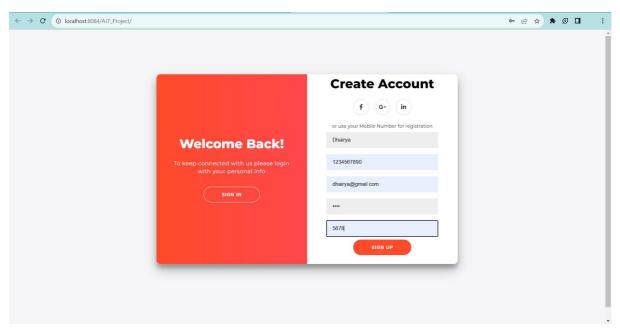
* @return a String containing servlet description

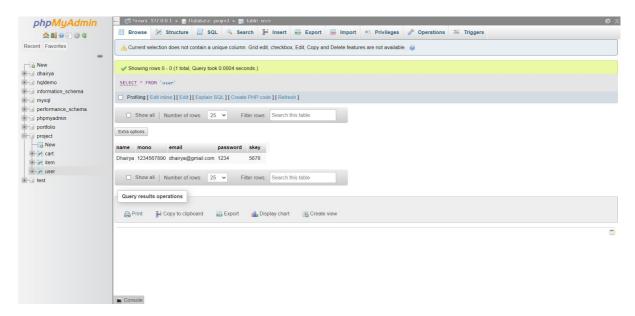
*/
@Override
public String getServletInfo() {
    return "Short description";
}// </editor-fold>
```

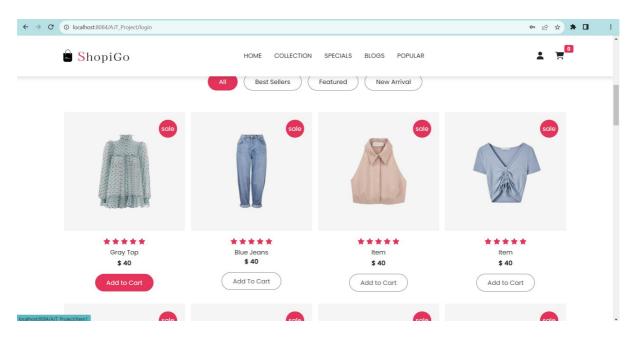
}

CHAPTER 4 SCREENSHOTS

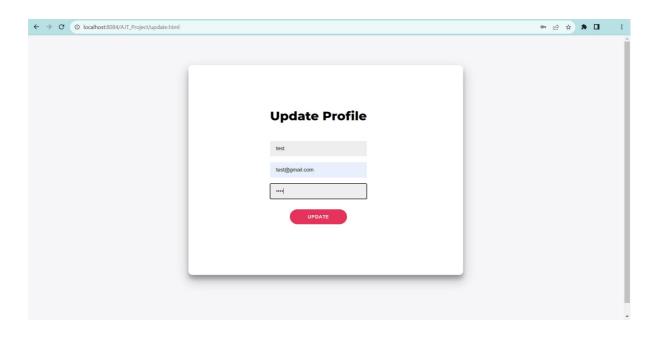
4.1 Admin Screenshot

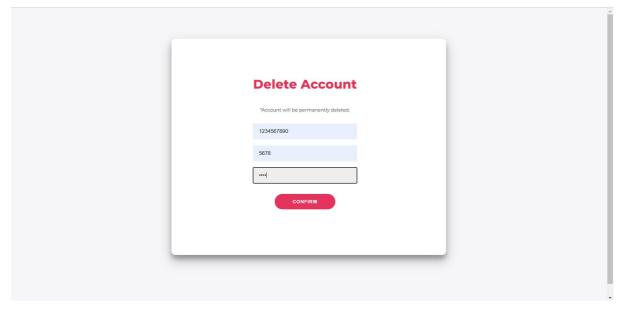


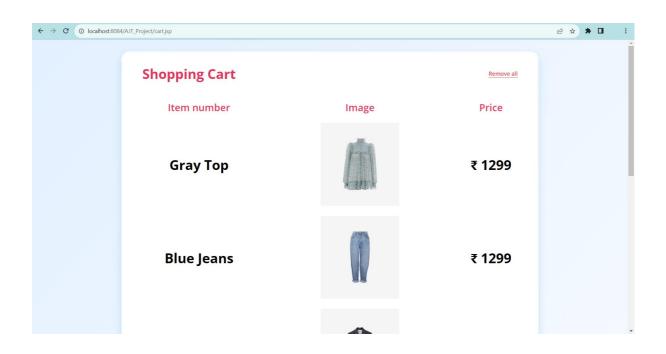


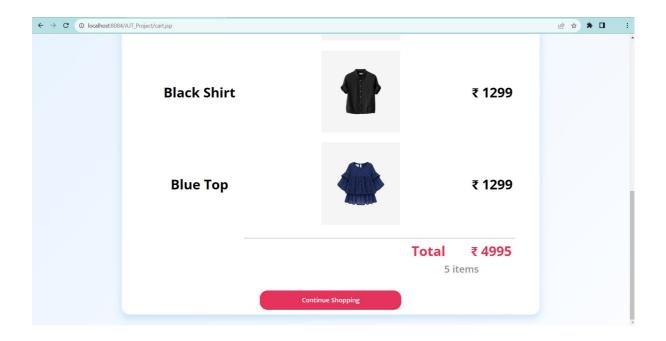












CHAPTER 5 CONCLUSION AND FUTURE ENHANCEMENTS

5.1 Conclusion

The e-commerce shopping website constructed with JSP, servlet, HTML, revolutionizes shopping websites with improved efficiency, security and customer services. It reduces time introducing real time updates and encryption for data security servlets platform independent capabilities ensure accessibility. While it may not have all the features of Shopping Website, though it has helped us with valuable learning experiences.

5.2 Future Enhancements

In future we will work on our security, time and database such that our user can interact with our website easily. Also with more technologies we will make our website more responsive and will add more features to our website.

REFERENCES

<In IEEE Format – Add minimum 5 references>

1. E-Commerce Systems Architecture and Applications

By Wasim Rajput

2. <u>Security Fundamentals for E-Commerce</u>

By Vesna Hassler

3. <u>Designing Professional Websites with Odoo Website</u>

<u>Builder: Create and customize state-of-the-art websites</u>

<u>and e-commerce apps for your modern business needs</u>

By Sainu Nannat

4. Real-World Next.js: Build scalable, high-performance, and modern web applications using Next.js, the React framework for production

By Michele Riva

5. <u>5 Conclusions and Future Directions</u>

By Emmanouil Amolochitis

Algorithms and Applications for Academic Search, Recommendation and Quantitative Association Rule Mining