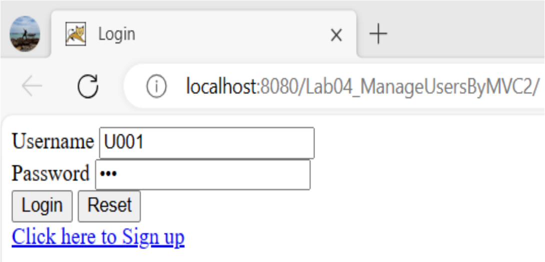
Building an Java Web Application

Using MVC2, JSP & JSTL

Requirements

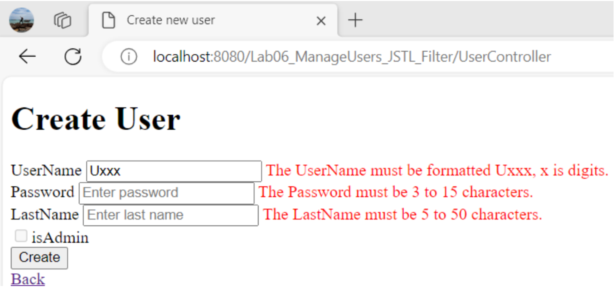
Create an Java web application (using HTML, Servlets , JSP and JDBC) by MVC2 Model to perform functions as manage users.



Username U001

Password •••

Click here to Sign up



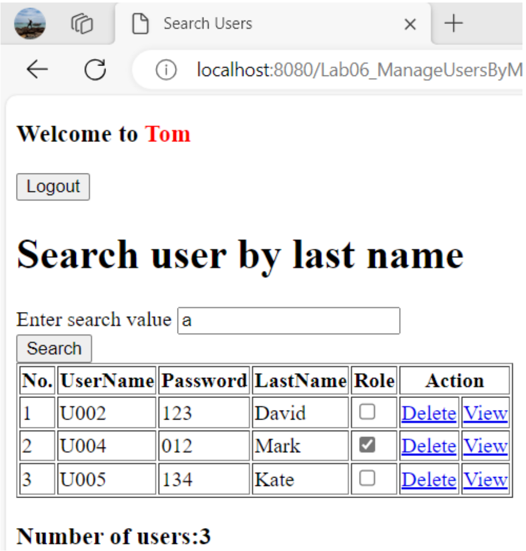
Create User

UserName Uxxx The UserName must be formatted Uxxx, x is digits.

Password Enter password The Password must be 3 to 15 characters.

LastName Enter last name The LastName must be 5 to 50 characters.

□ isAdmin



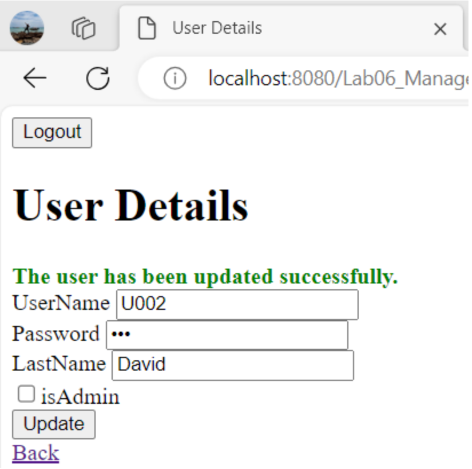
Welcome to Tom

Search user by last name

Enter search value a

No.	UserName	Password	LastName	Role	Action	
1	U002	123	David	□	Delete	View
2	U004	012	Mark	☑	Delete	View
3	U005	134	Kate	□	Delete	View

Number of users:3



User Details

The user has been updated successfully.

UserName U002

Password •••

LastName David

□ isAdmin

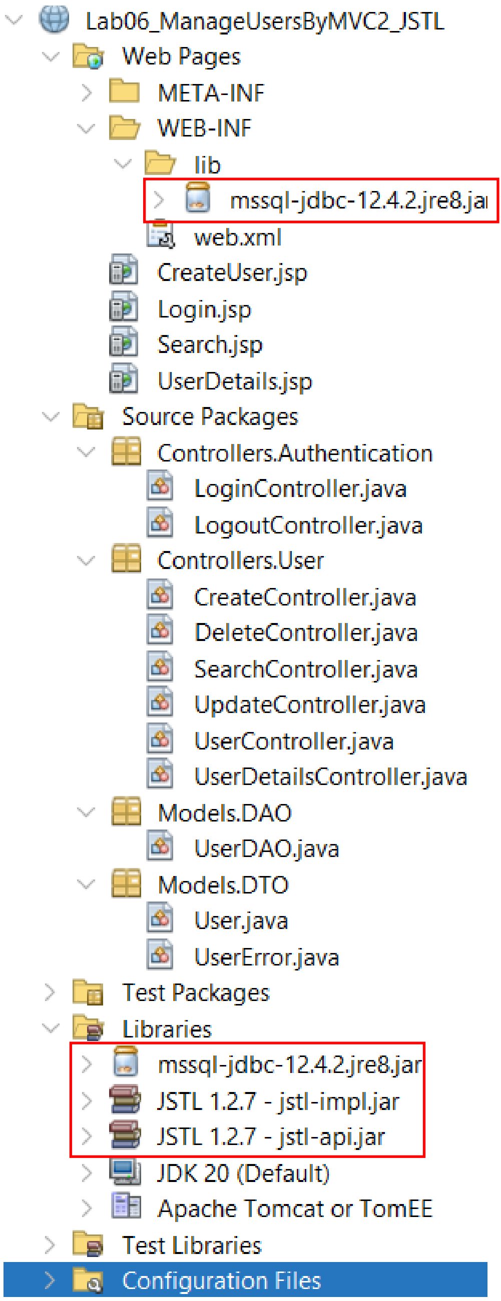
Lab Objectives

In this lab, you will be:

- Create Java web project by MVC2 Model
- Create the web pages by HTML, and JSP (JSTL & EL)
- Apply passing data from HTML to Servlet by GET and POST method
- Apply Error handling in the web app
- Apply RequestDispatcher to pass data between Servlets

- Performs CRUD functions by SqlJDBC driver and SQL Server
- Run the project and test the functions of the project

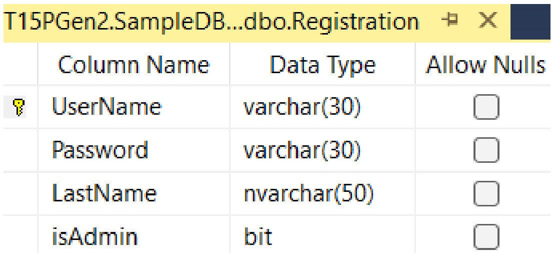
Step 01. Create a Java Web App named **Lab06_ManageUsersByMVC2_JSTL** is structured as follows:



```
Lab06_ManageUsersByMVC2_JSTL
  Web Pages
    META-INF
    WEB-INF
      lib
        mssql-jdbc-12.4.2.jre8.jar
      web.xml
    CreateUser.jsp
    Login.jsp
    Search.jsp
    UserDetails.jsp
  Source Packages
    Controllers.Authentication
      LoginController.java
      LogoutController.java
    Controllers.User
      CreateController.java
      DeleteController.java
      SearchController.java
      UpdateController.java
      UserController.java
      UserDetailsController.java
    Models.DAO
      UserDAO.java
    Models.DTO
      User.java
      UserError.java
  Test Packages
  Libraries
    mssql-jdbc-12.4.2.jre8.jar
    JSTL 1.2.7 - jstl-impl.jar
    JSTL 1.2.7 - jstl-api.jar
    JDK 20 (Default)
    Apache Tomcat or TomEE
  Test Libraries
  Configuration Files
```

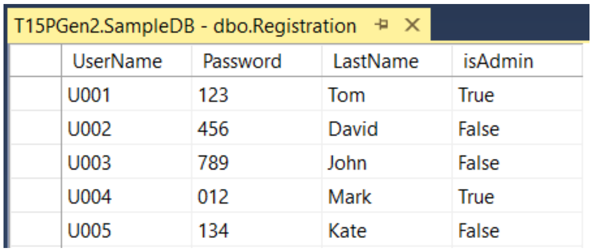
- On the project, right-click on Libraries | Add JAR/Folder then select **sqljdbc(sqljdbc42.jar)** driver that matches the Sql Server version on the machine.

-Open SQL Server Management Studio and create a database named **SampleDB** has a table named **Registration** as follows:



T15PGen2.SampleDB...dbo.Registration

Column Name	Data Type	Allow Nulls
UserName	varchar(30)	☐
Password	varchar(30)	☐
LastName	nvarchar(50)	☐
isAdmin	bit	☐



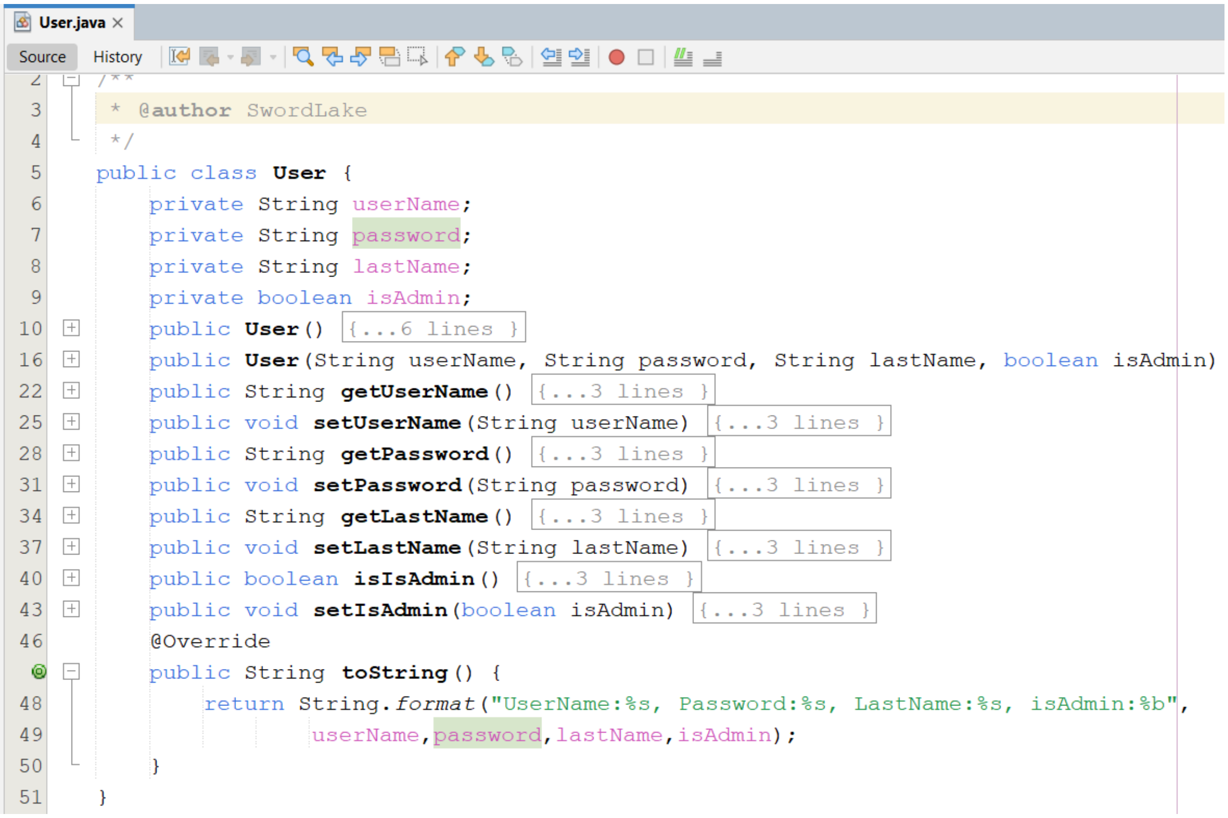
T15PGen2.SampleDB - dbo.Registration

UserName	Password	LastName	isAdmin
U001	123	Tom	True
U002	456	David	False
U003	789	John	False
U004	012	Mark	True
U005	134	Kate	False

<u>Step 02</u>. Write codes for the classes in the **Models.DTO and Models.DAO** packages as the follows:

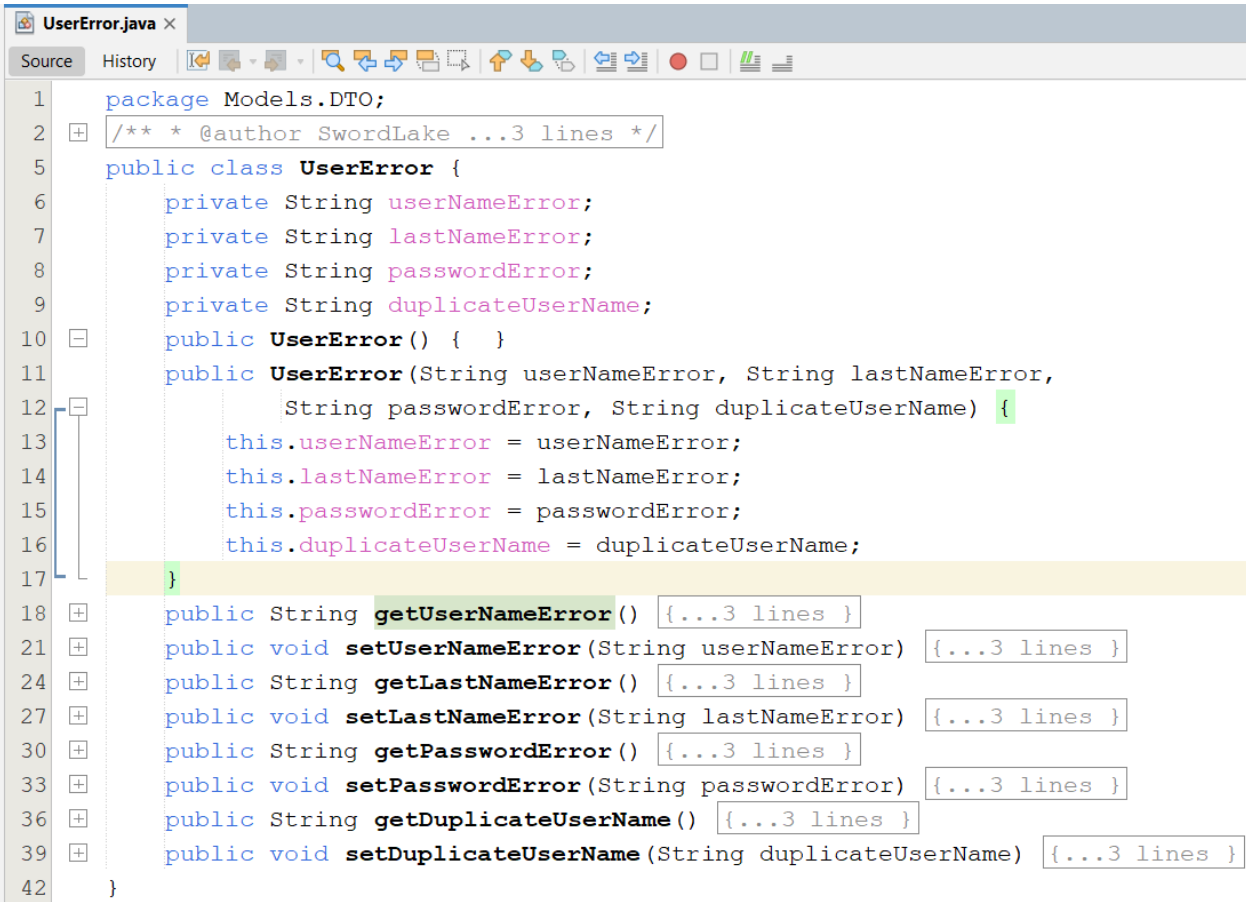
2.1. **Models.DTO** package

- **User.java**



```
/**
 * @author SwordLake
 */
public class User {
    private String userName;
    private String password;
    private String lastName;
    private boolean isAdmin;
    public User() {...6 lines }
    public User(String userName, String password, String lastName, boolean isAdmin)
    public String getUserName() {...3 lines }
    public void setUserName(String userName) {...3 lines }
    public String getPassword() {...3 lines }
    public void setPassword(String password) {...3 lines }
    public String getLastName() {...3 lines }
    public void setLastName(String lastName) {...3 lines }
    public boolean isIsAdmin() {...3 lines }
    public void setIsAdmin(boolean isAdmin) {...3 lines }
    @Override
    public String toString() {
        return String.format("UserName:%s, Password:%s, LastName:%s, isAdmin:%b",
                userName,password,lastName,isAdmin);
    }
}
```

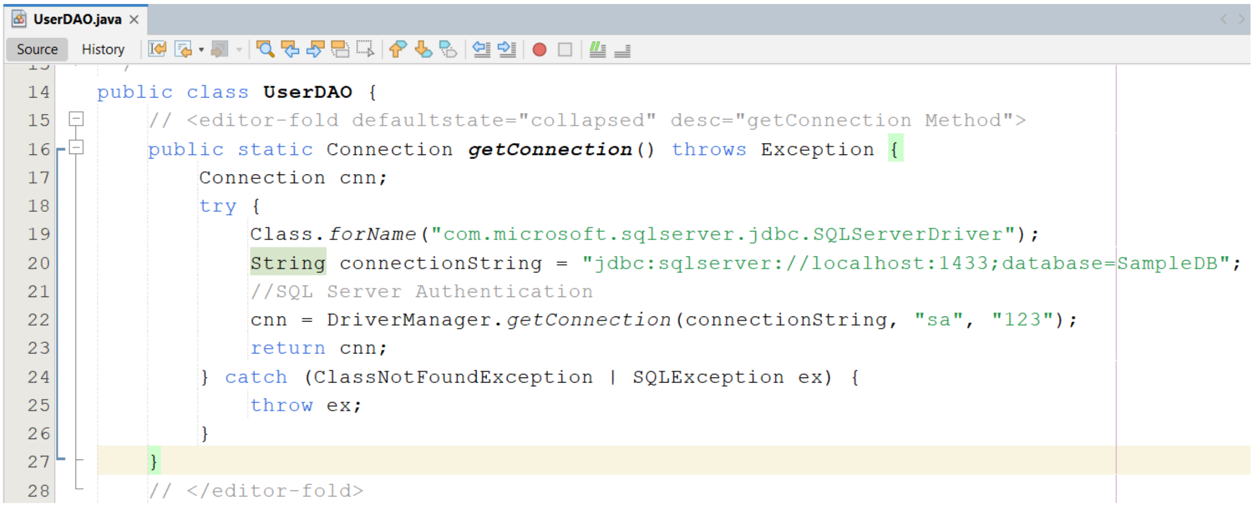
- **UserError.java**



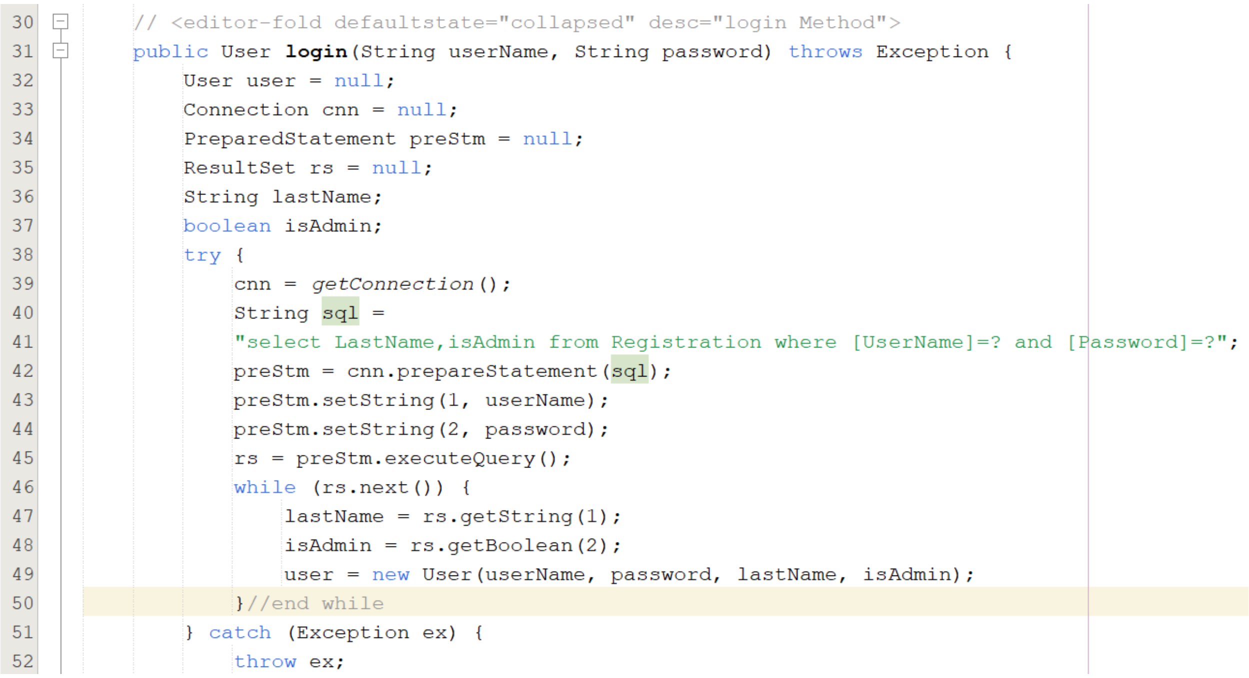
```
package Models.DTO;
/** * @author SwordLake ...3 lines */
public class UserError {
    private String userNameError;
    private String lastNameError;
    private String passwordError;
    private String duplicateUserName;
    public UserError() {  }
    public UserError(String userNameError, String lastNameError,
            String passwordError, String duplicateUserName) {
        this.userNameError = userNameError;
        this.lastNameError = lastNameError;
        this.passwordError = passwordError;
        this.duplicateUserName = duplicateUserName;
    }
    public String getUserNameError() {...3 lines }
    public void setUserNameError(String userNameError) {...3 lines }
    public String getLastNameError() {...3 lines }
    public void setLastNameError(String lastNameError) {...3 lines }
    public String getPasswordError() {...3 lines }
    public void setPasswordError(String passwordError) {...3 lines }
    public String getDuplicateUserName() {...3 lines }
    public void setDuplicateUserName(String duplicateUserName) {...3 lines }
}
```

2.2. **Models.DAO** package

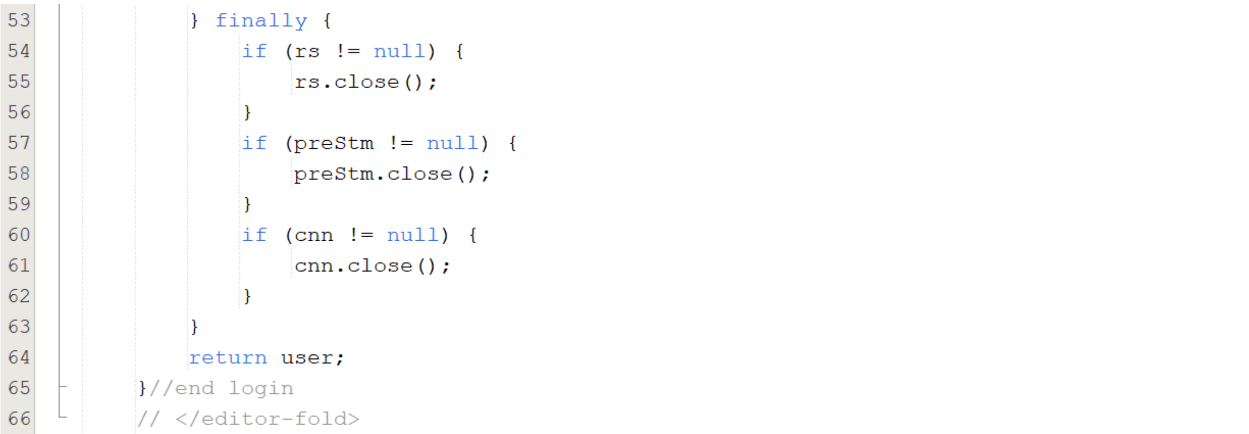
- **UserDAO.java**



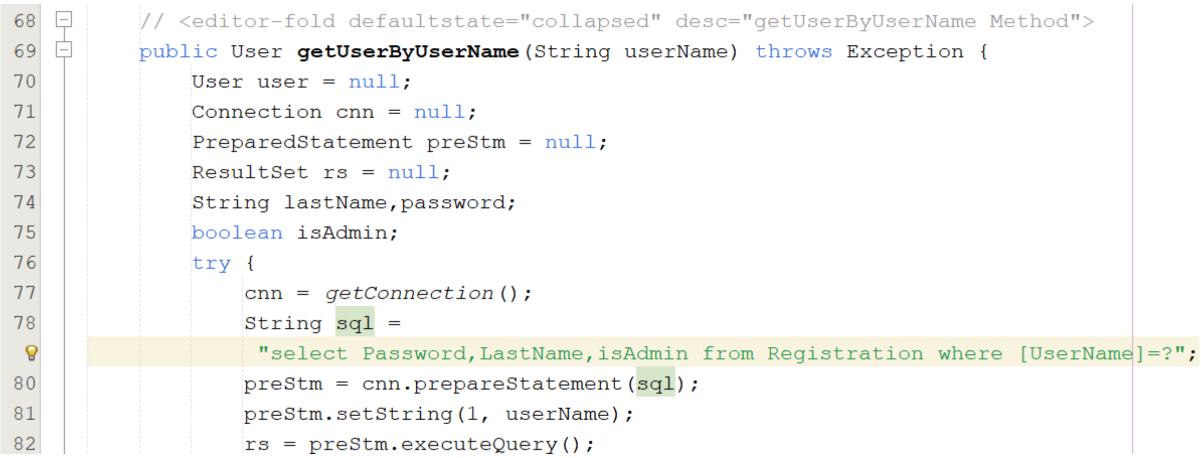
```
public class UserDAO {
    // <editor-fold defaultstate="collapsed" desc="getConnection Method">
    public static Connection getConnection() throws Exception {
        Connection cnn;
        try {
            Class.forName("com.microsoft.sqlserver.jdbc.SQLServerDriver");
            String connectionString = "jdbc:sqlserver://localhost:1433;database=SampleDB";
            //SQL Server Authentication
            cnn = DriverManager.getConnection(connectionString, "sa", "123");
            return cnn;
        } catch (ClassNotFoundException | SQLException ex) {
            throw ex;
        }
    }
    // </editor-fold>
```



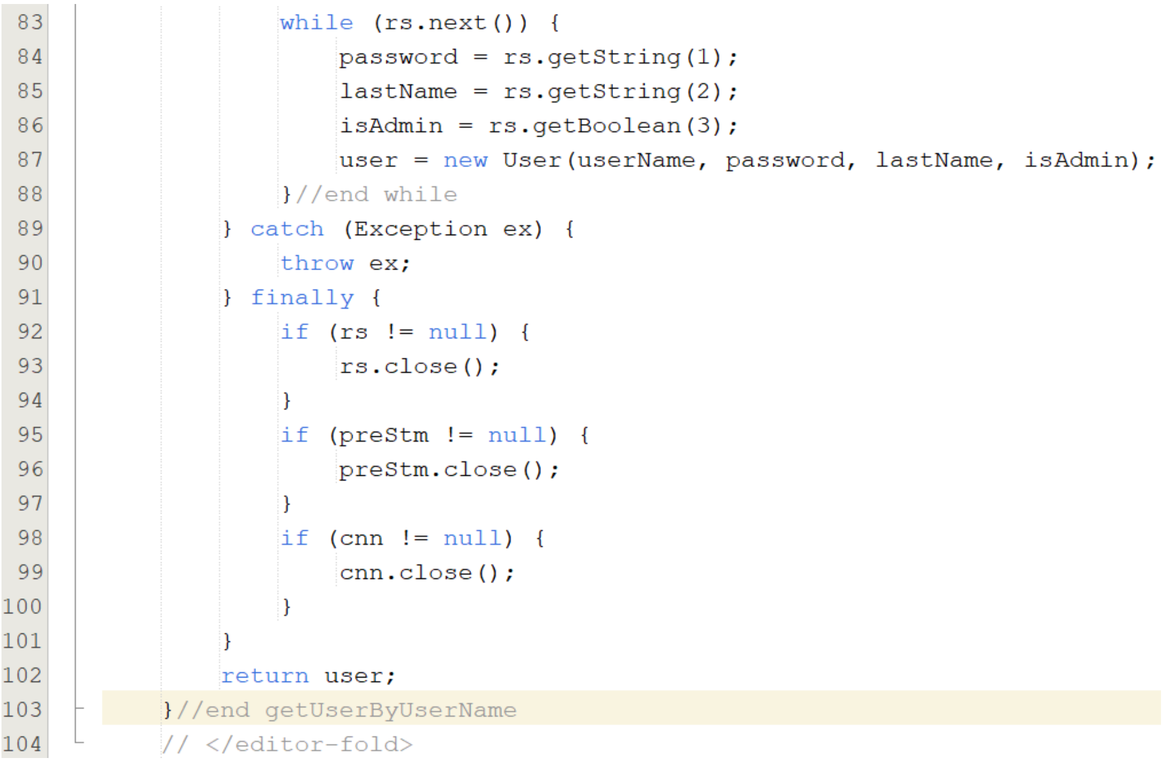
```
// <editor-fold defaultstate="collapsed" desc="login Method">
public User login(String userName, String password) throws Exception {
    User user = null;
    Connection cnn = null;
    PreparedStatement preStm = null;
    ResultSet rs = null;
    String lastName;
    boolean isAdmin;
    try {
        cnn = getConnection();
        String sql =
        "select LastName,isAdmin from Registration where [UserName]=? and [Password]=?";
        preStm = cnn.prepareStatement(sql);
        preStm.setString(1, userName);
        preStm.setString(2, password);
        rs = preStm.executeQuery();
        while (rs.next()) {
            lastName = rs.getString(1);
            isAdmin = rs.getBoolean(2);
            user = new User(userName, password, lastName, isAdmin);
        }//end while
    } catch (Exception ex) {
        throw ex;
```



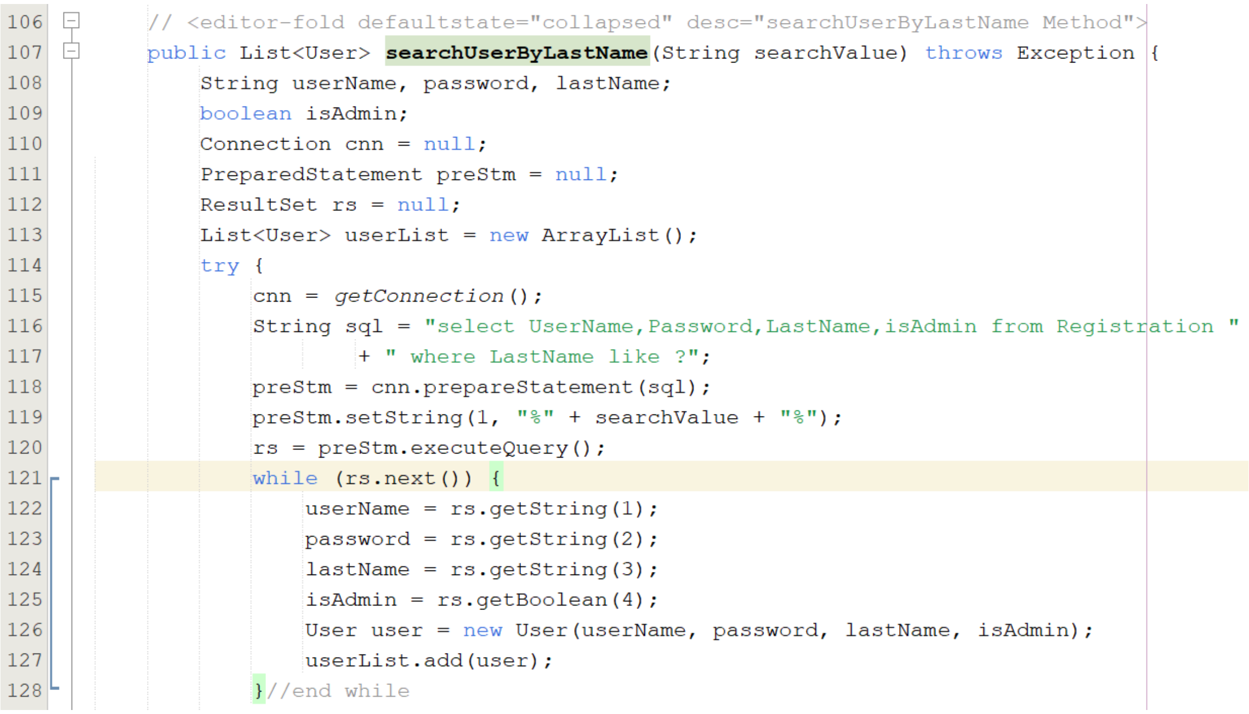
```
    } finally {
        if (rs != null) {
            rs.close();
        }
        if (preStm != null) {
            preStm.close();
        }
        if (cnn != null) {
            cnn.close();
        }
    }
    return user;
}//end login
// </editor-fold>
```



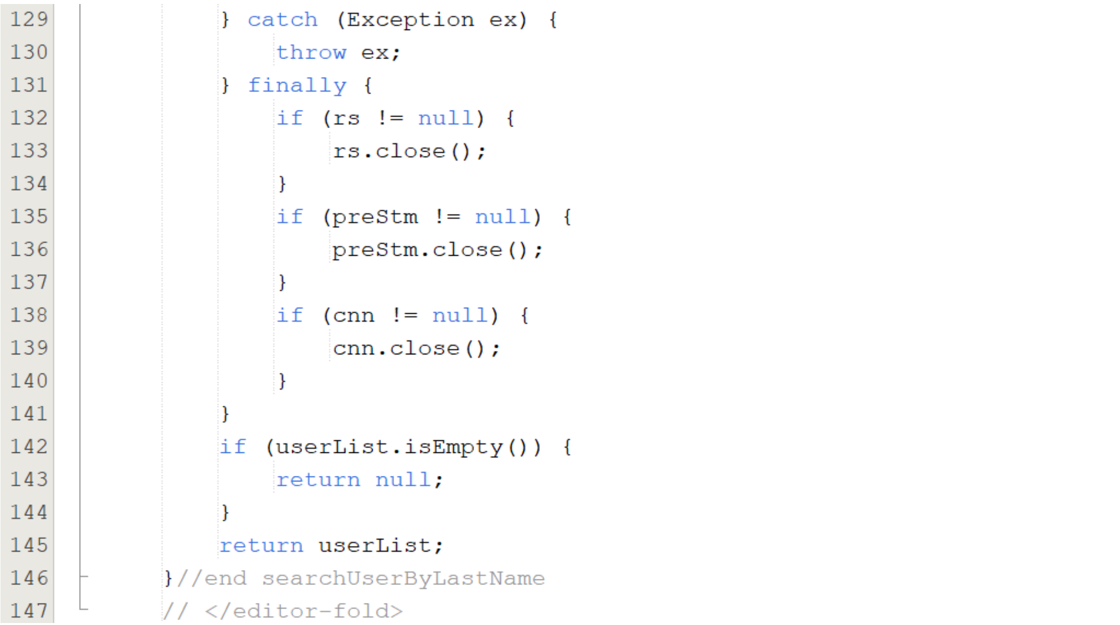
```
// <editor-fold defaultstate="collapsed" desc="getUserByUserName Method">
public User getUserByUserName(String userName) throws Exception {
    User user = null;
    Connection cnn = null;
    PreparedStatement preStm = null;
    ResultSet rs = null;
    String lastName,password;
    boolean isAdmin;
    try {
        cnn = getConnection();
        String sql =
         "select Password,LastName,isAdmin from Registration where [UserName]=?";
        preStm = cnn.prepareStatement(sql);
        preStm.setString(1, userName);
        rs = preStm.executeQuery();
```



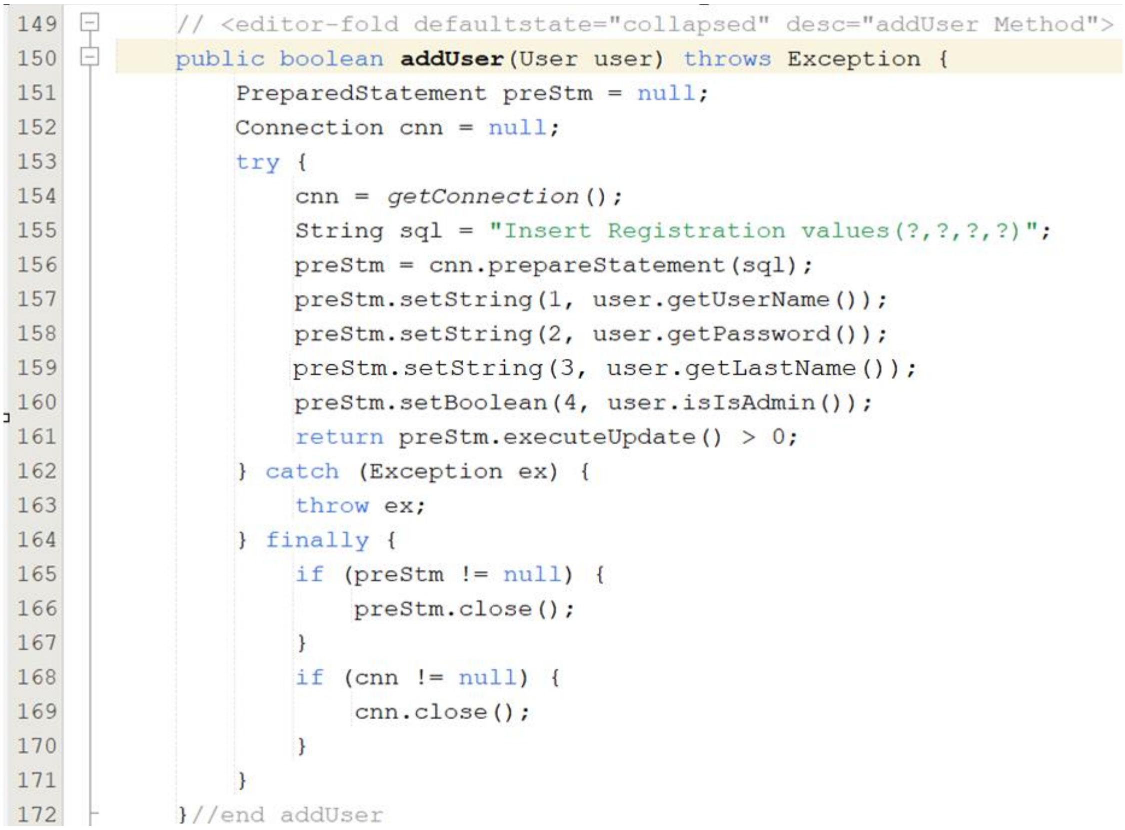
```
            while (rs.next()) {
                password = rs.getString(1);
                lastName = rs.getString(2);
                isAdmin = rs.getBoolean(3);
                user = new User(userName, password, lastName, isAdmin);
            }//end while
        } catch (Exception ex) {
            throw ex;
        } finally {
            if (rs != null) {
                rs.close();
            }
            if (preStm != null) {
                preStm.close();
            }
            if (cnn != null) {
                cnn.close();
            }
        }
        return user;
    }//end getUserByUserName
    // </editor-fold>
```



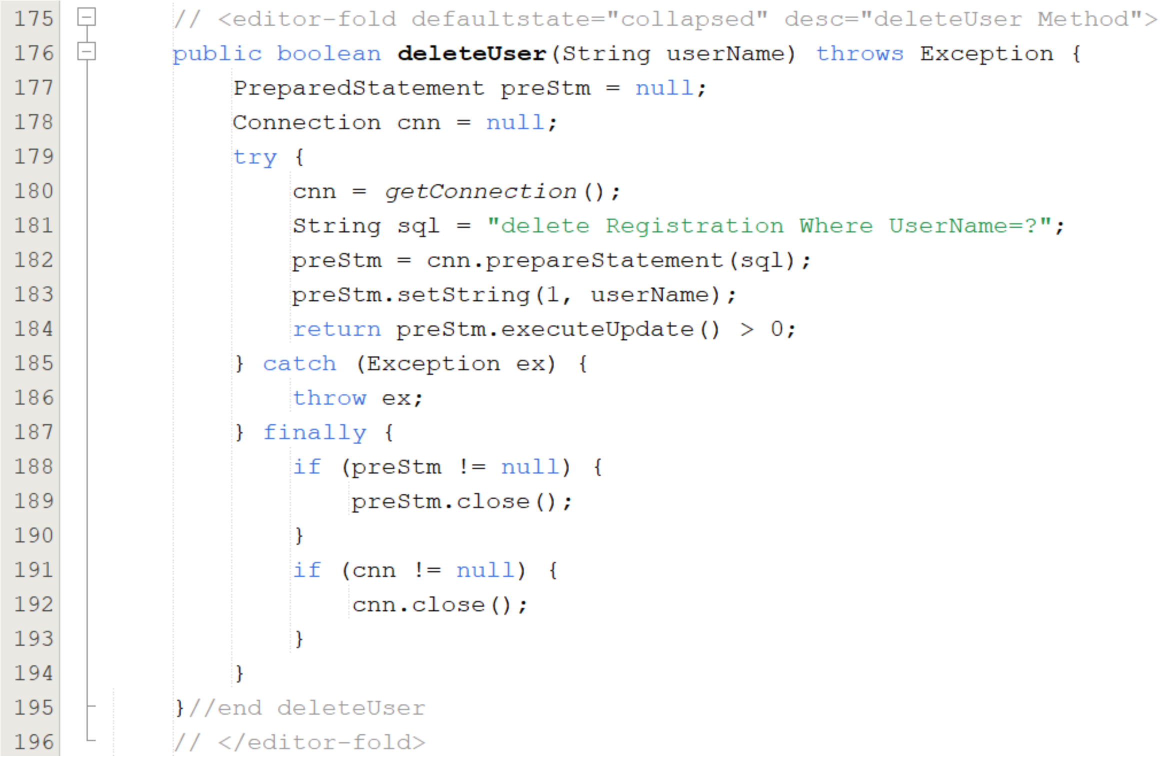
```
    // <editor-fold defaultstate="collapsed" desc="searchUserByLastName Method">
    public List<User> searchUserByLastName(String searchValue) throws Exception {
        String userName, password, lastName;
        boolean isAdmin;
        Connection cnn = null;
        PreparedStatement preStm = null;
        ResultSet rs = null;
        List<User> userList = new ArrayList();
        try {
            cnn = getConnection();
            String sql = "select UserName,Password,LastName,isAdmin from Registration "
                    + " where LastName like ?";
            preStm = cnn.prepareStatement(sql);
            preStm.setString(1, "%" + searchValue + "%");
            rs = preStm.executeQuery();
            while (rs.next()) {
                userName = rs.getString(1);
                password = rs.getString(2);
                lastName = rs.getString(3);
                isAdmin = rs.getBoolean(4);
                User user = new User(userName, password, lastName, isAdmin);
                userList.add(user);
            }//end while
```



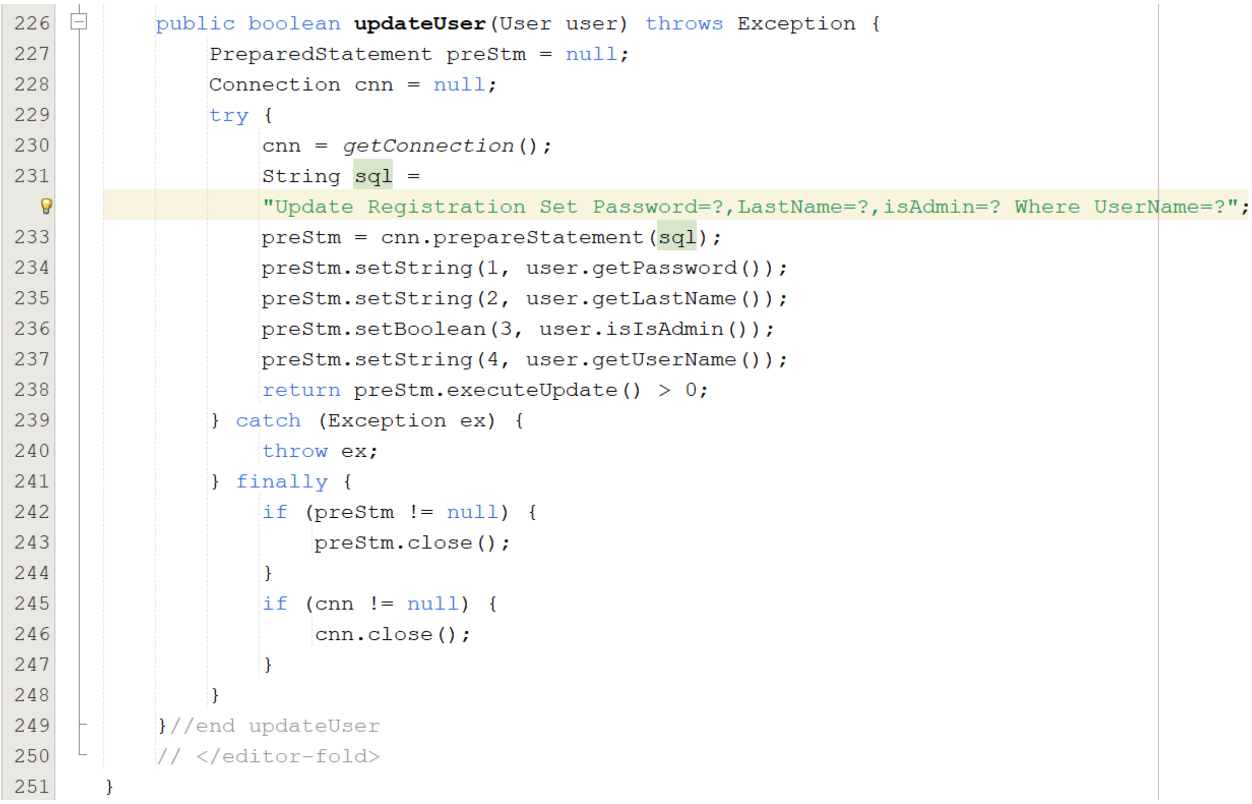
```
        } catch (Exception ex) {
            throw ex;
        } finally {
            if (rs != null) {
                rs.close();
            }
            if (preStm != null) {
                preStm.close();
            }
            if (cnn != null) {
                cnn.close();
            }
        }
        if (userList.isEmpty()) {
            return null;
        }
        return userList;
    }//end searchUserByLastName
    // </editor-fold>
```



```
    // <editor-fold defaultstate="collapsed" desc="addUser Method">
    public boolean addUser(User user) throws Exception {
        PreparedStatement preStm = null;
        Connection cnn = null;
        try {
            cnn = getConnection();
            String sql = "Insert Registration values(?,?,?,?)";
            preStm = cnn.prepareStatement(sql);
            preStm.setString(1, user.getUserName());
            preStm.setString(2, user.getPassword());
            preStm.setString(3, user.getLastName());
            preStm.setBoolean(4, user.isIsAdmin());
            return preStm.executeUpdate() > 0;
        } catch (Exception ex) {
            throw ex;
        } finally {
            if (preStm != null) {
                preStm.close();
            }
            if (cnn != null) {
                cnn.close();
            }
        }
    }//end addUser
```



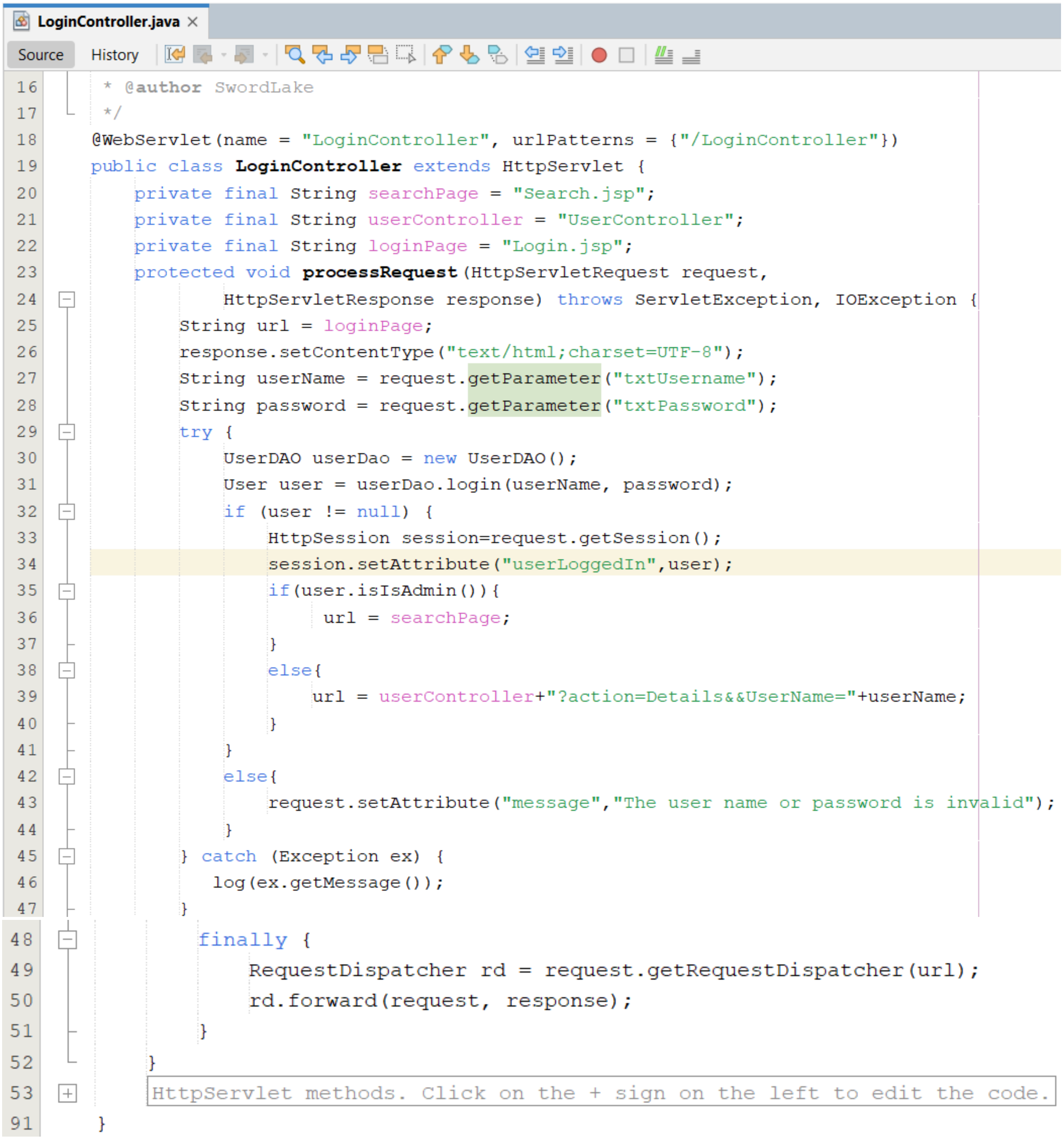
```
    // <editor-fold defaultstate="collapsed" desc="deleteUser Method">
    public boolean deleteUser(String userName) throws Exception {
        PreparedStatement preStm = null;
        Connection cnn = null;
        try {
            cnn = getConnection();
            String sql = "delete Registration Where UserName=?";
            preStm = cnn.prepareStatement(sql);
            preStm.setString(1, userName);
            return preStm.executeUpdate() > 0;
        } catch (Exception ex) {
            throw ex;
        } finally {
            if (preStm != null) {
                preStm.close();
            }
            if (cnn != null) {
                cnn.close();
            }
        }
    }//end deleteUser
    // </editor-fold>
```



```
    public boolean updateUser(User user) throws Exception {
        PreparedStatement preStm = null;
        Connection cnn = null;
        try {
            cnn = getConnection();
            String sql =
            "Update Registration Set Password=?,LastName=?,isAdmin=? Where UserName=?";
            preStm = cnn.prepareStatement(sql);
            preStm.setString(1, user.getPassword());
            preStm.setString(2, user.getLastName());
            preStm.setBoolean(3, user.isIsAdmin());
            preStm.setString(4, user.getUserName());
            return preStm.executeUpdate() > 0;
        } catch (Exception ex) {
            throw ex;
        } finally {
            if (preStm != null) {
                preStm.close();
            }
            if (cnn != null) {
                cnn.close();
            }
        }
    }//end updateUser
    // </editor-fold>
}
```

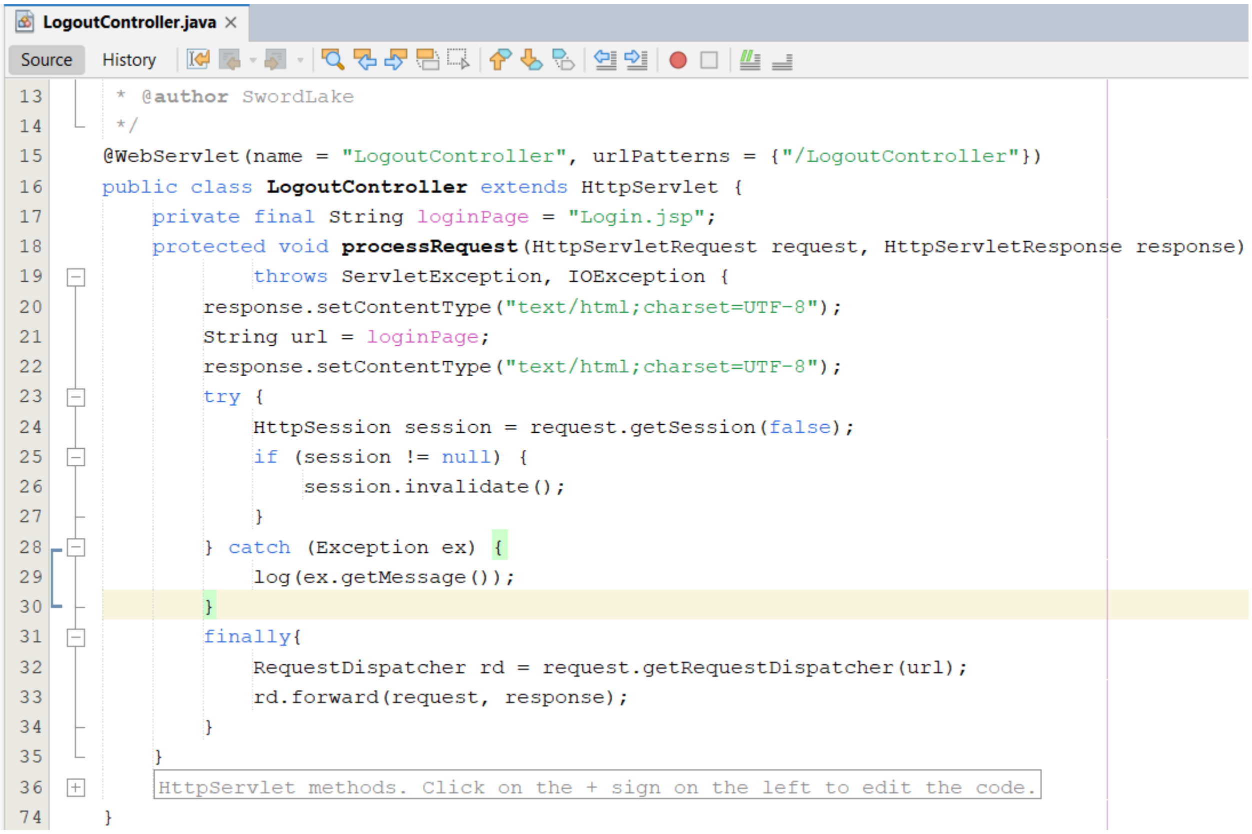
Step 03. Write codes for the classes in the **Controllers.Authentication** package as the follows:

- **LoginController.java**



```
 * @author SwordLake
 */
@WebServlet(name = "LoginController", urlPatterns = {"/LoginController"})
public class LoginController extends HttpServlet {
    private final String searchPage = "Search.jsp";
    private final String userController = "UserController";
    private final String loginPage = "Login.jsp";
    protected void processRequest(HttpServletRequest request,
            HttpServletResponse response) throws ServletException, IOException {
        String url = loginPage;
        response.setContentType("text/html;charset=UTF-8");
        String userName = request.getParameter("txtUsername");
        String password = request.getParameter("txtPassword");
        try {
            UserDAO userDao = new UserDAO();
            User user = userDao.login(userName, password);
            if (user != null) {
                HttpSession session=request.getSession();
                session.setAttribute("userLoggedIn",user);
                if(user.isIsAdmin()){
                     url = searchPage;
                }
                else{
                    url = userController+"?action=Details&&UserName="+userName;
                }
            }
            else{
                request.setAttribute("message","The user name or password is invalid");
            }
        } catch (Exception ex) {
          log(ex.getMessage());
        }
        finally {
            RequestDispatcher rd = request.getRequestDispatcher(url);
            rd.forward(request, response);
        }
    }
HttpServlet methods. Click on the + sign on the left to edit the code.
}
```

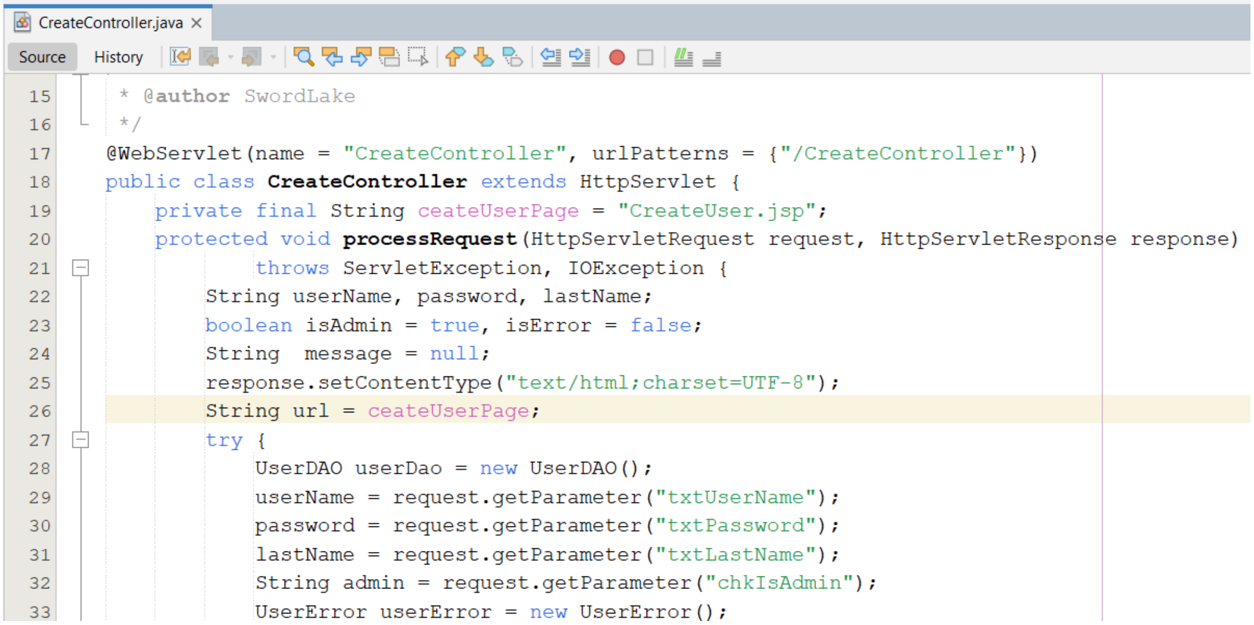
- **LogoutController.java**



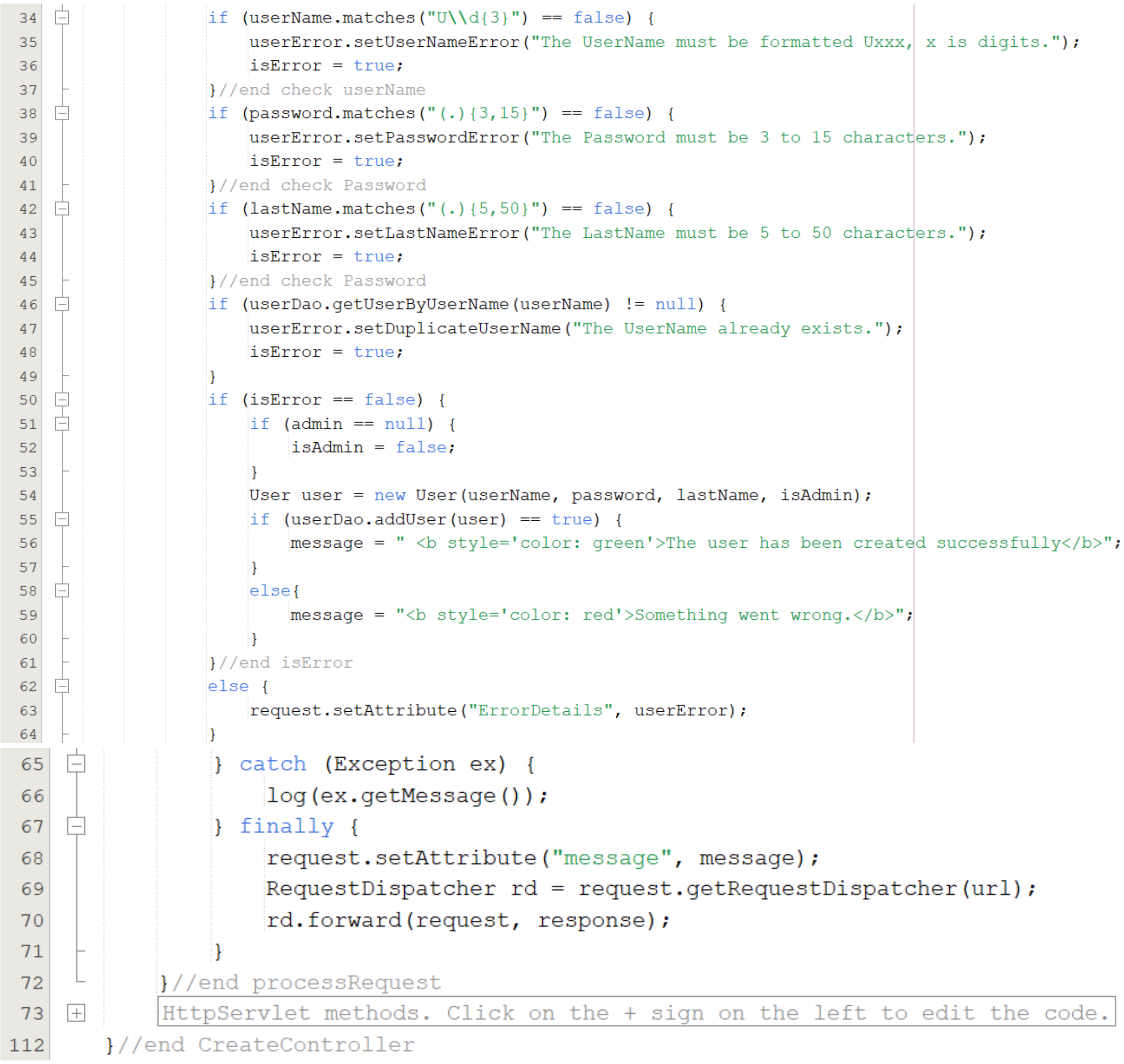
```
 * @author SwordLake
 */
@WebServlet(name = "LogoutController", urlPatterns = {"/LogoutController"})
public class LogoutController extends HttpServlet {
    private final String loginPage = "Login.jsp";
    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        String url = loginPage;
        response.setContentType("text/html;charset=UTF-8");
        try {
            HttpSession session = request.getSession(false);
            if (session != null) {
                session.invalidate();
            }
        } catch (Exception ex) {
            log(ex.getMessage());
        }
        finally{
            RequestDispatcher rd = request.getRequestDispatcher(url);
            rd.forward(request, response);
        }
    }
    HttpServlet methods. Click on the + sign on the left to edit the code.
}
```

<u>Step 04</u>. Write codes for the classes in the **Controllers.User** package as the follows:

- **CreateController.java**

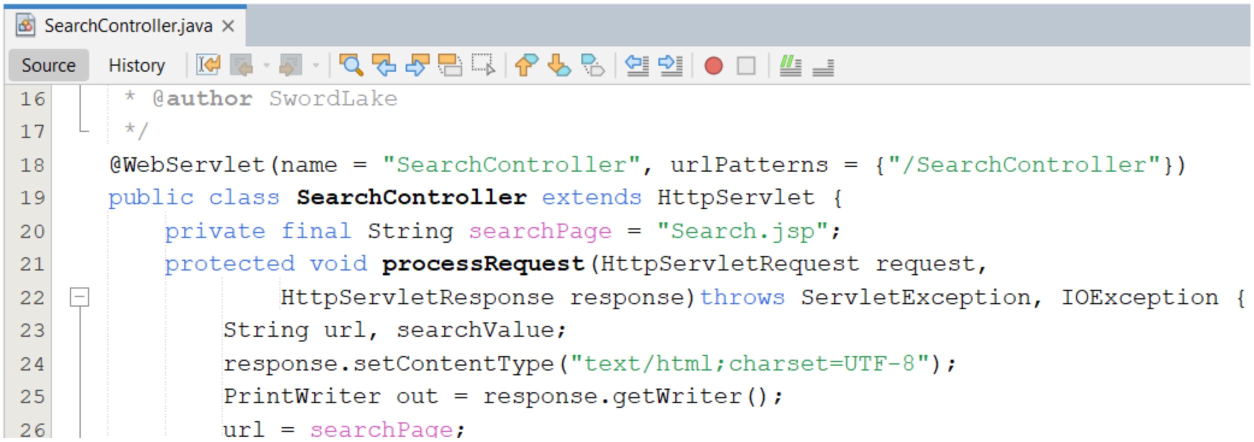


```
 * @author SwordLake
 */
@WebServlet(name = "CreateController", urlPatterns = {"/CreateController"})
public class CreateController extends HttpServlet {
    private final String ceateUserPage = "CreateUser.jsp";
    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        String userName, password, lastName;
        boolean isAdmin = true, isError = false;
        String  message = null;
        response.setContentType("text/html;charset=UTF-8");
        String url = ceateUserPage;
        try {
            UserDAO userDao = new UserDAO();
            userName = request.getParameter("txtUserName");
            password = request.getParameter("txtPassword");
            lastName = request.getParameter("txtLastName");
            String admin = request.getParameter("chkIsAdmin");
            UserError userError = new UserError();
```

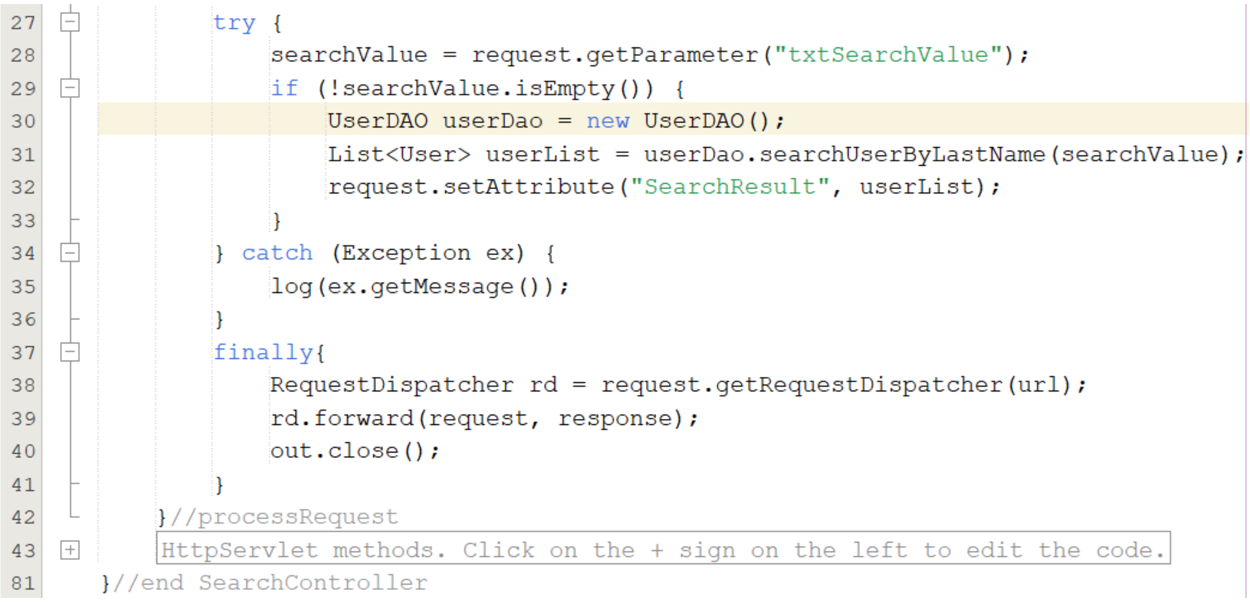


```
            if (userName.matches("U\\d{3}") == false) {
                userError.setUserNameError("The UserName must be formatted Uxxx, x is digits.");
                isError = true;
            }//end check userName
            if (password.matches("(.){3,15}") == false) {
                userError.setPasswordError("The Password must be 3 to 15 characters.");
                isError = true;
            }//end check Password
            if (lastName.matches("(.){5,50}") == false) {
                userError.setLastNameError("The LastName must be 5 to 50 characters.");
                isError = true;
            }//end check Password
            if (userDao.getUserByUserName(userName) != null) {
                userError.setDuplicateUserName("The UserName already exists.");
                isError = true;
            }
            if (isError == false) {
                if (admin == null) {
                    isAdmin = false;
                }
                User user = new User(userName, password, lastName, isAdmin);
                if (userDao.addUser(user) == true) {
                    message = " <b style='color: green'>The user has been created successfully</b>";
                }
                else{
                    message = "<b style='color: red'>Something went wrong.</b>";
                }
            }//end isError
            else {
                request.setAttribute("ErrorDetails", userError);
            }
        } catch (Exception ex) {
            log(ex.getMessage());
        } finally {
            request.setAttribute("message", message);
            RequestDispatcher rd = request.getRequestDispatcher(url);
            rd.forward(request, response);
        }
    }//end processRequest
    HttpServlet methods. Click on the + sign on the left to edit the code.
}//end CreateController
```

- **SearchController.java**

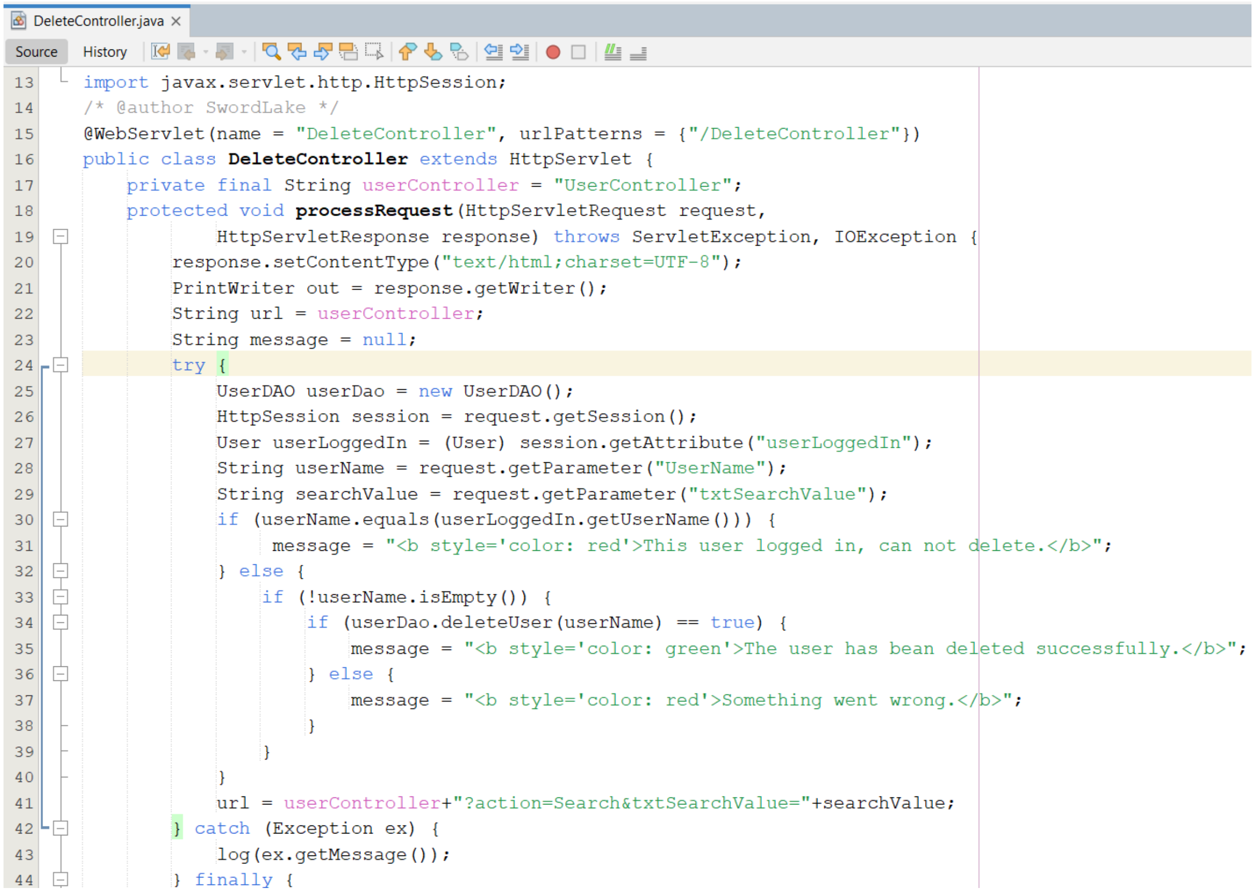


```
 * @author SwordLake
 */
@WebServlet(name = "SearchController", urlPatterns = {"/SearchController"})
public class SearchController extends HttpServlet {
    private final String searchPage = "Search.jsp";
    protected void processRequest(HttpServletRequest request,
            HttpServletResponse response)throws ServletException, IOException {
        String url, searchValue;
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        url = searchPage;
```

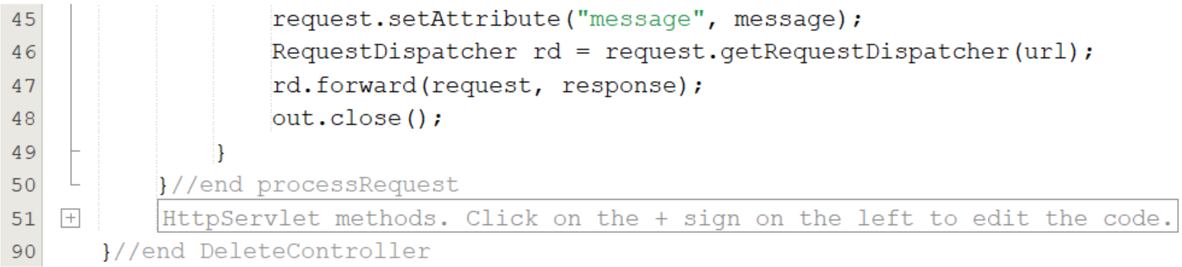


```
        try {
            searchValue = request.getParameter("txtSearchValue");
            if (!searchValue.isEmpty()) {
                UserDAO userDao = new UserDAO();
                List<User> userList = userDao.searchUserByLastName(searchValue);
                request.setAttribute("SearchResult", userList);
            }
        } catch (Exception ex) {
            log(ex.getMessage());
        }
        finally{
            RequestDispatcher rd = request.getRequestDispatcher(url);
            rd.forward(request, response);
            out.close();
        }
    }//processRequest
    HttpServlet methods. Click on the + sign on the left to edit the code.
}//end SearchController
```

- **DeleteController.java**

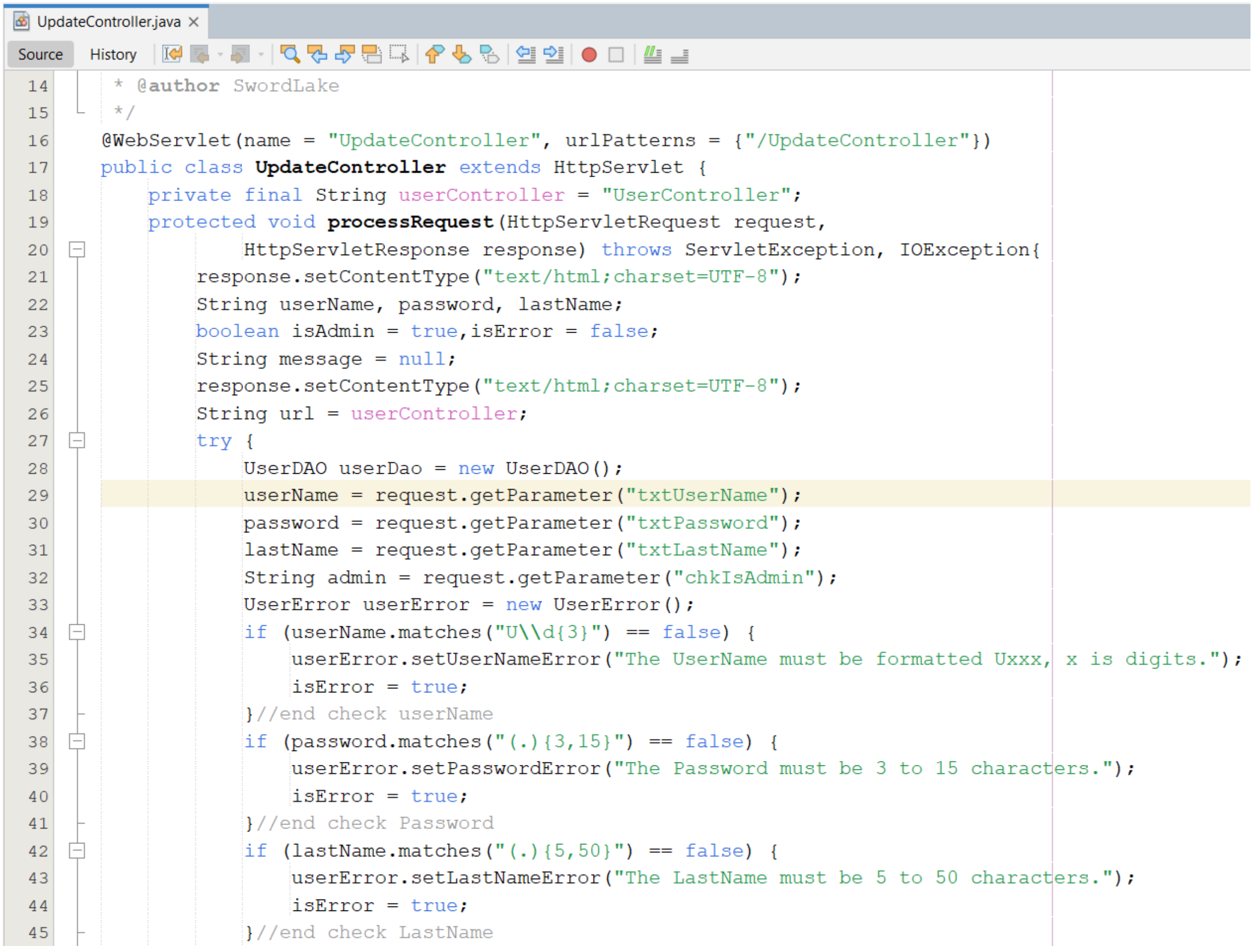


```
import javax.servlet.http.HttpSession;
/* @author SwordLake */
@WebServlet(name = "DeleteController", urlPatterns = {"/DeleteController"})
public class DeleteController extends HttpServlet {
    private final String userController = "UserController";
    protected void processRequest(HttpServletRequest request,
            HttpServletResponse response) throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        String url = userController;
        String message = null;
        try {
            UserDAO userDao = new UserDAO();
            HttpSession session = request.getSession();
            User userLoggedIn = (User) session.getAttribute("userLoggedIn");
            String userName = request.getParameter("UserName");
            String searchValue = request.getParameter("txtSearchValue");
            if (userName.equals(userLoggedIn.getUserName())) {
                message = "<b style='color: red'>This user logged in, can not delete.</b>";
            } else {
                if (!userName.isEmpty()) {
                    if (userDao.deleteUser(userName) == true) {
                        message = "<b style='color: green'>The user has bean deleted successfully.</b>";
                    } else {
                        message = "<b style='color: red'>Something went wrong.</b>";
                    }
                }
            }
            url = userController+"?action=Search&txtSearchValue="+searchValue;
        } catch (Exception ex) {
            log(ex.getMessage());
        } finally {
```

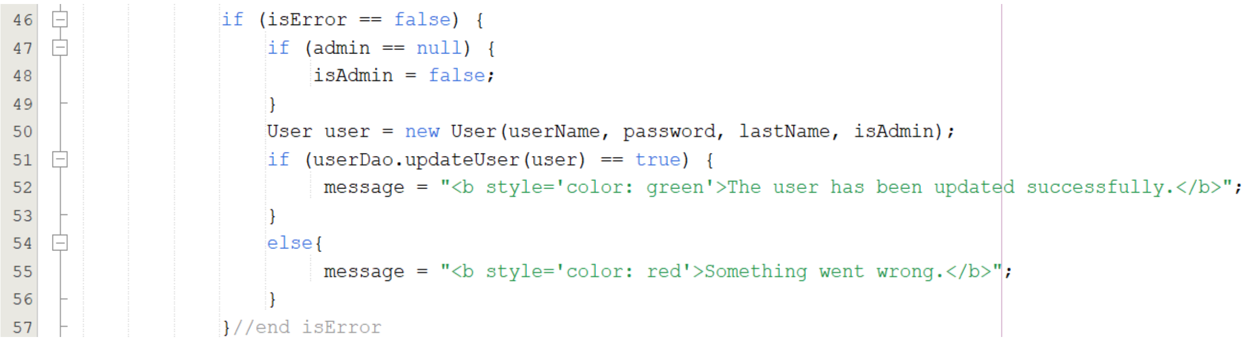


```
                request.setAttribute("message", message);
                RequestDispatcher rd = request.getRequestDispatcher(url);
                rd.forward(request, response);
                out.close();
            }
    }//end processRequest
    HttpServlet methods. Click on the + sign on the left to edit the code.
}//end DeleteController
```

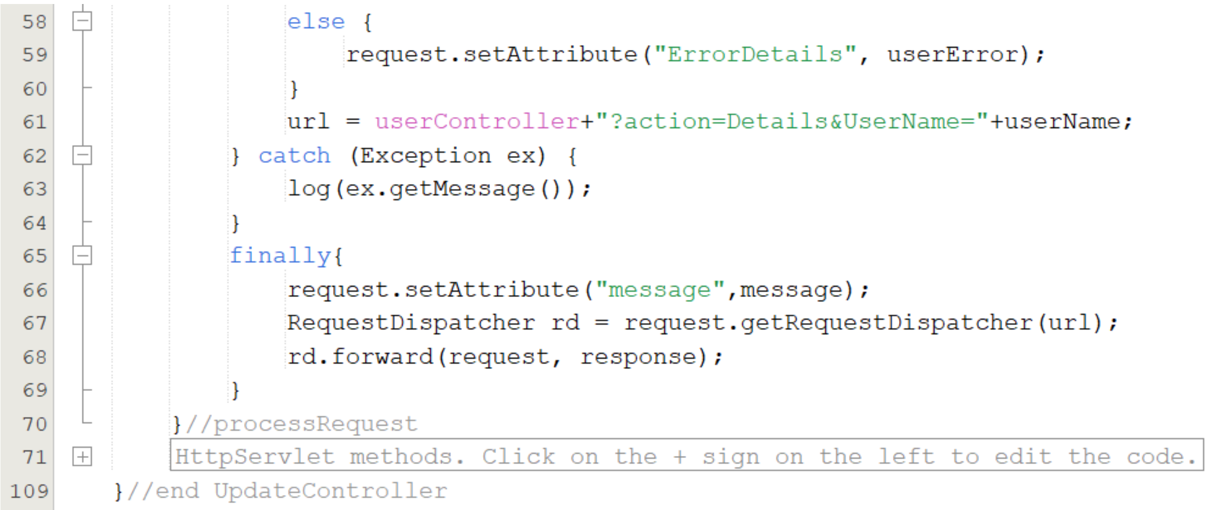
- **UpdateController.java**



```
 * @author SwordLake
 */
@WebServlet(name = "UpdateController", urlPatterns = {"/UpdateController"})
public class UpdateController extends HttpServlet {
    private final String userController = "UserController";
    protected void processRequest(HttpServletRequest request,
            HttpServletResponse response) throws ServletException, IOException{
        response.setContentType("text/html;charset=UTF-8");
        String userName, password, lastName;
        boolean isAdmin = true,isError = false;
        String message = null;
        response.setContentType("text/html;charset=UTF-8");
        String url = userController;
        try {
            UserDAO userDao = new UserDAO();
            userName = request.getParameter("txtUserName");
            password = request.getParameter("txtPassword");
            lastName = request.getParameter("txtLastName");
            String admin = request.getParameter("chkIsAdmin");
            UserError userError = new UserError();
            if (userName.matches("U\\d{3}") == false) {
                userError.setUserNameError("The UserName must be formatted Uxxx, x is digits.");
                isError = true;
            }//end check userName
            if (password.matches("(.){3,15}") == false) {
                userError.setPasswordError("The Password must be 3 to 15 characters.");
                isError = true;
            }//end check Password
            if (lastName.matches("(.){5,50}") == false) {
                userError.setLastNameError("The LastName must be 5 to 50 characters.");
                isError = true;
            }//end check LastName
```

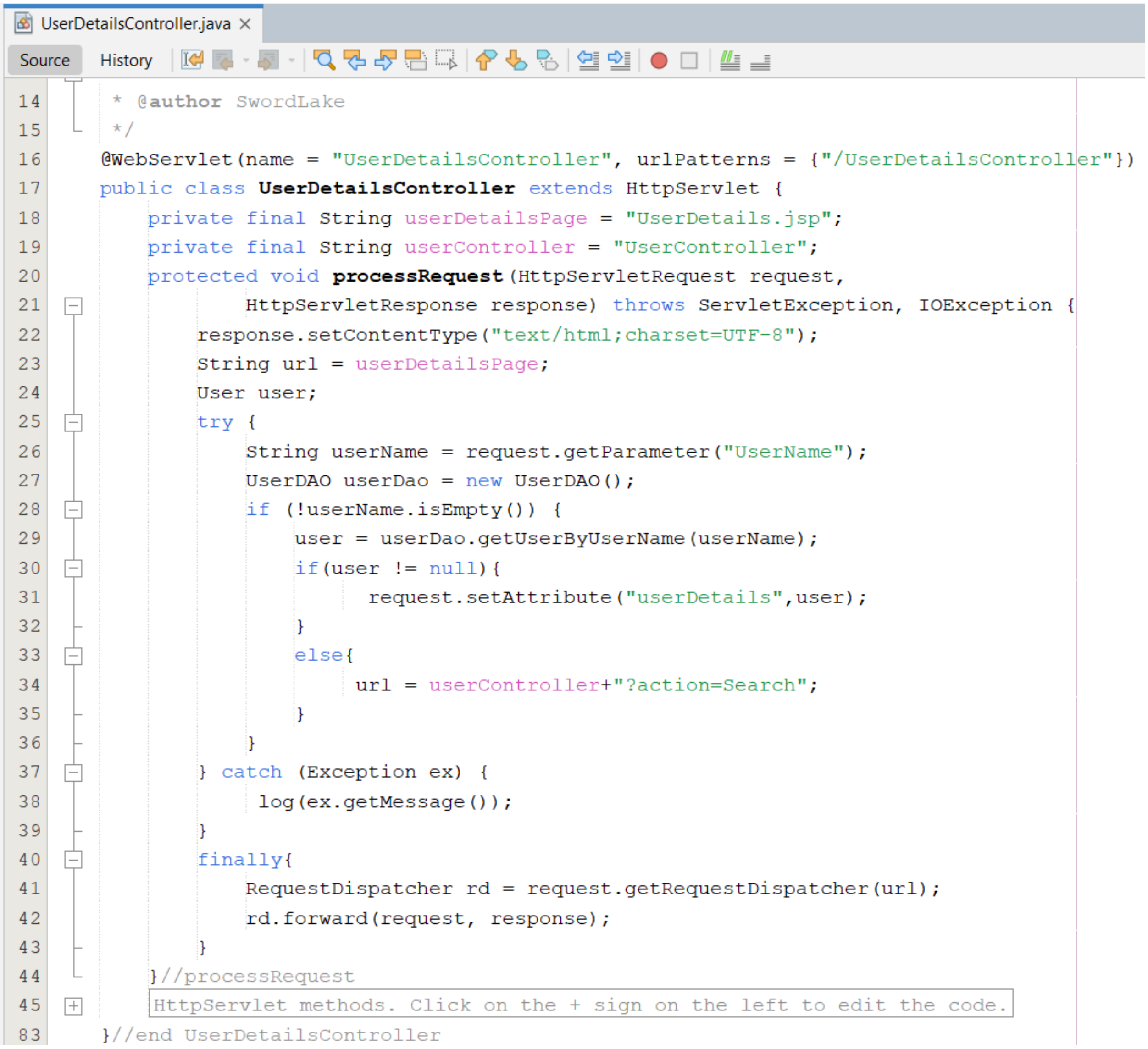


```
            if (isError == false) {
                if (admin == null) {
                    isAdmin = false;
                }
                User user = new User(userName, password, lastName, isAdmin);
                if (userDao.updateUser(user) == true) {
                    message = "<b style='color: green'>The user has been updated successfully.</b>";
                }
                else{
                    message = "<b style='color: red'>Something went wrong.</b>";
                }
            }//end isError
```



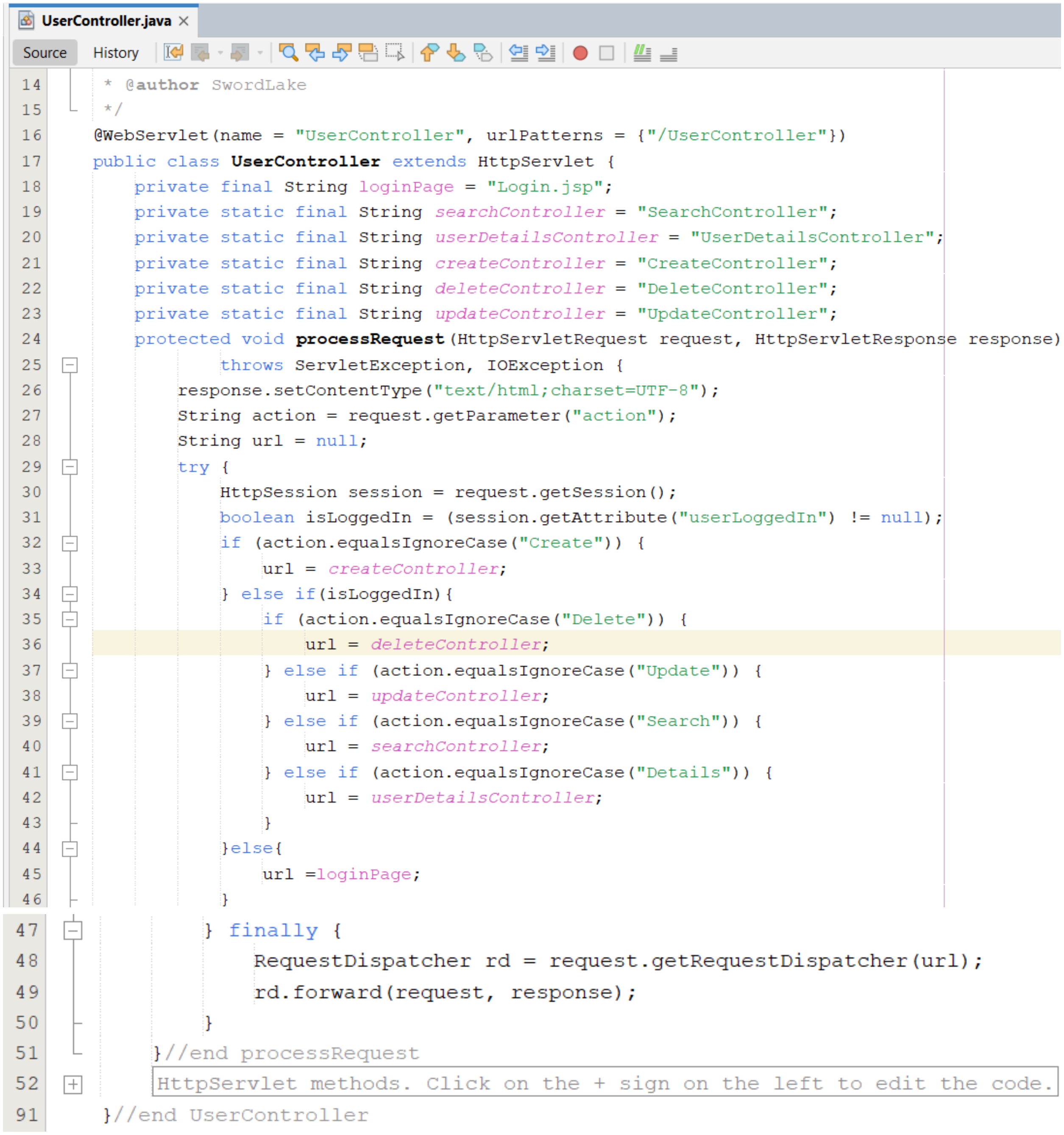
```
            else {
                request.setAttribute("ErrorDetails", userError);
            }
            url = userController+"?action=Details&UserName="+userName;
        } catch (Exception ex) {
            log(ex.getMessage());
        }
        finally{
            request.setAttribute("message",message);
            RequestDispatcher rd = request.getRequestDispatcher(url);
            rd.forward(request, response);
        }
    }//processRequest
    HttpServlet methods. Click on the + sign on the left to edit the code.
}//end UpdateController
```

- **UserDetailsController.java**



```
 * @author SwordLake
 */
@WebServlet(name = "UserDetailsController", urlPatterns = {"/UserDetailsController"})
public class UserDetailsController extends HttpServlet {
    private final String userDetailsPage = "UserDetails.jsp";
    private final String userController = "UserController";
    protected void processRequest(HttpServletRequest request,
            HttpServletResponse response) throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        String url = userDetailsPage;
        User user;
        try {
            String userName = request.getParameter("UserName");
            UserDAO userDao = new UserDAO();
            if (!userName.isEmpty()) {
                user = userDao.getUserByUserName(userName);
                if(user != null){
                      request.setAttribute("userDetails",user);
                }
                else{
                     url = userController+"?action=Search";
                }
            }
        } catch (Exception ex) {
             log(ex.getMessage());
        }
        finally{
            RequestDispatcher rd = request.getRequestDispatcher(url);
            rd.forward(request, response);
        }
    }//processRequest
    HttpServlet methods. Click on the + sign on the left to edit the code.
}//end UserDetailsController
```

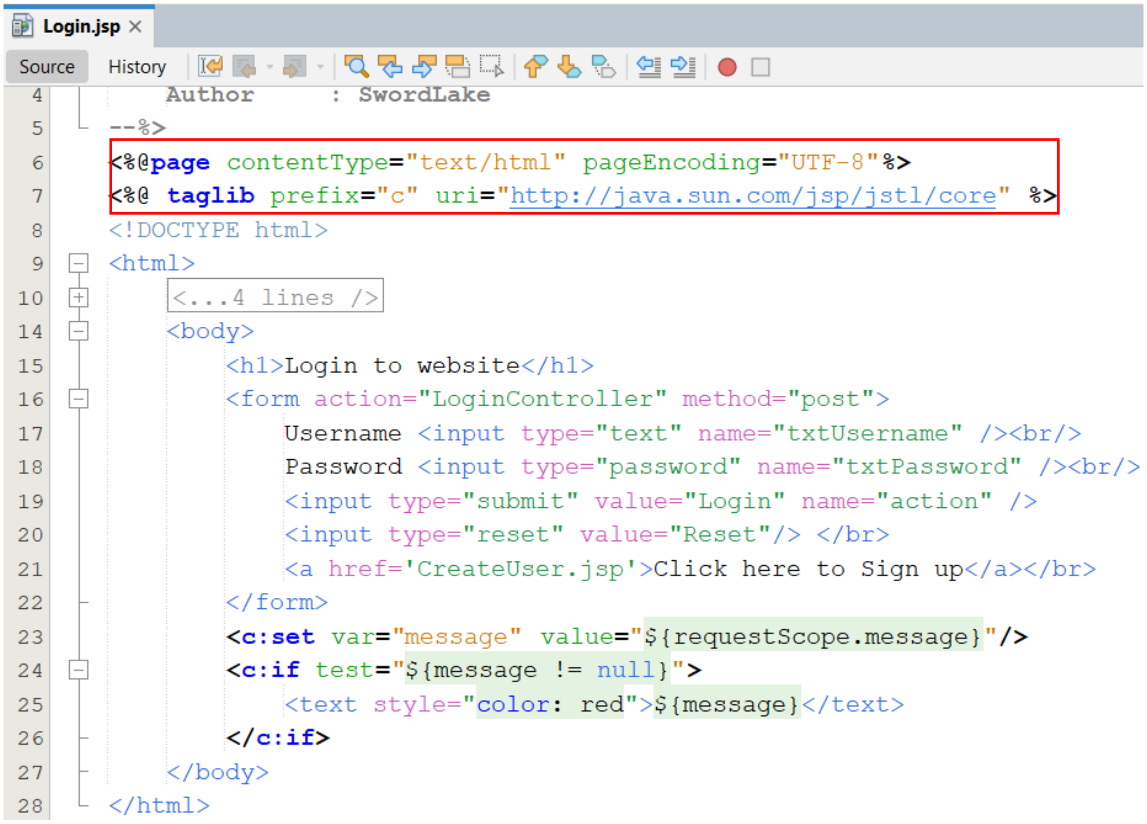
- **UserController.java**



```
 * @author SwordLake
 */
@WebServlet(name = "UserController", urlPatterns = {"/UserController"})
public class UserController extends HttpServlet {
    private final String loginPage = "Login.jsp";
    private static final String searchController = "SearchController";
    private static final String userDetailsController = "UserDetailsController";
    private static final String createController = "CreateController";
    private static final String deleteController = "DeleteController";
    private static final String updateController = "UpdateController";
    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        String action = request.getParameter("action");
        String url = null;
        try {
            HttpSession session = request.getSession();
            boolean isLoggedIn = (session.getAttribute("userLoggedIn") != null);
            if (action.equalsIgnoreCase("Create")) {
                url = createController;
            } else if(isLoggedIn){
                if (action.equalsIgnoreCase("Delete")) {
                    url = deleteController;
                } else if (action.equalsIgnoreCase("Update")) {
                    url = updateController;
                } else if (action.equalsIgnoreCase("Search")) {
                    url = searchController;
                } else if (action.equalsIgnoreCase("Details")) {
                    url = userDetailsController;
                }
            }else{
                url =loginPage;
            }
        } finally {
            RequestDispatcher rd = request.getRequestDispatcher(url);
            rd.forward(request, response);
        }
    }//end processRequest
    HttpServlet methods. Click on the + sign on the left to edit the code.
}//end UserController
```

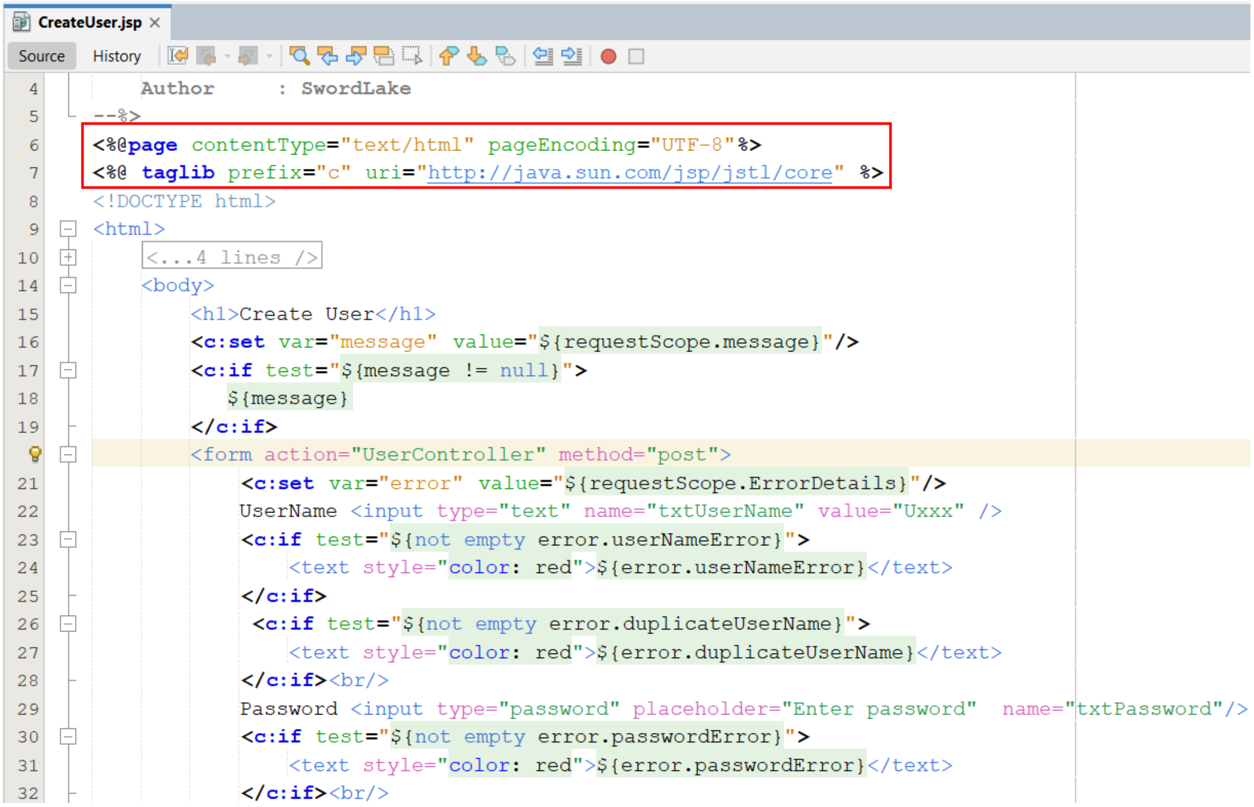
Step 05. Write codes for the web pages as the follows:

- **Login.html page**

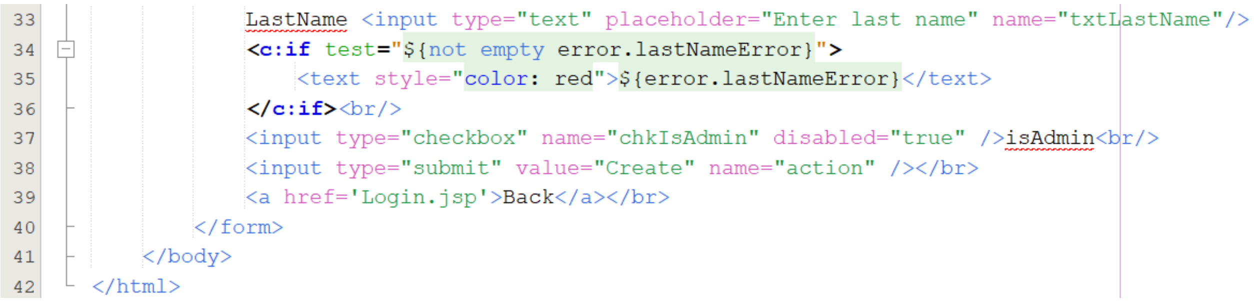


```
    Author      :  SwordLake
--%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<!DOCTYPE html>
<html>
    <...4 lines />
    <body>
        <h1>Login to website</h1>
        <form action="LoginController" method="post">
            Username <input type="text" name="txtUsername" /><br/>
            Password <input type="password" name="txtPassword" /><br/>
            <input type="submit" value="Login" name="action" />
            <input type="reset" value="Reset"/> </br>
            <a href='CreateUser.jsp'>Click here to Sign up</a></br>
        </form>
        <c:set var="message"  value="${requestScope.message}"/>
        <c:if test="${message != null}">
            <text style="color: red">${message}</text>
        </c:if>
    </body>
</html>
```

- **CreateUser.jsp page**

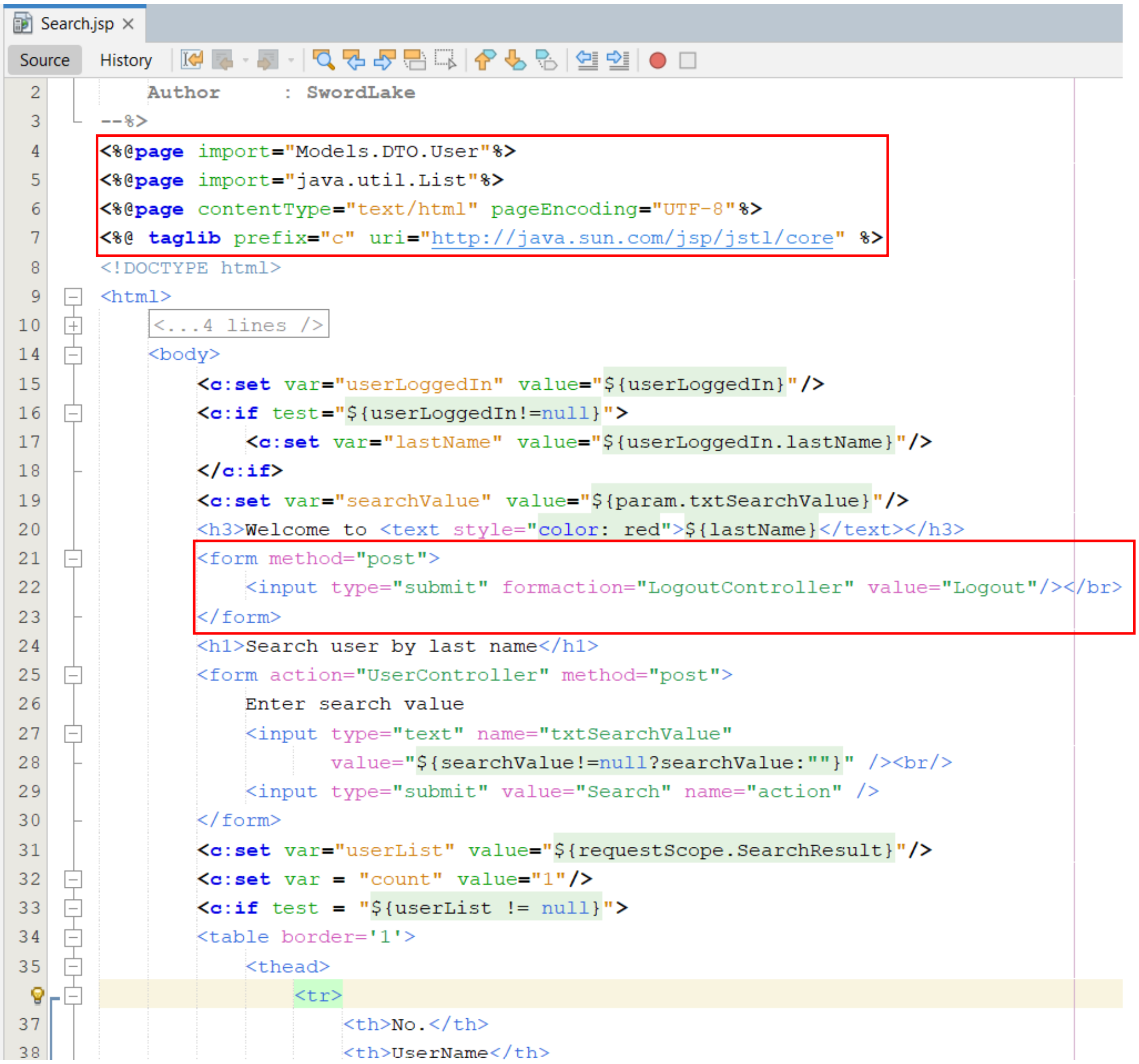


```
    Author      :  SwordLake
--%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<!DOCTYPE html>
<html>
    <...4 lines />
    <body>
        <h1>Create User</h1>
        <c:set var="message"  value="${requestScope.message}"/>
        <c:if test="${message != null}">
            ${message}
        </c:if>
        <form action="UserController" method="post">
            <c:set var="error"  value="${requestScope.ErrorDetails}"/>
            UserName <input type="text" name="txtUserName" value="Uxxx" />
            <c:if test="${not empty error.userNameError}">
                <text style="color: red">${error.userNameError}</text>
            </c:if>
             <c:if test="${not empty error.duplicateUserName}">
                <text style="color: red">${error.duplicateUserName}</text>
            </c:if><br/>
            Password <input type="password" placeholder="Enter password"  name="txtPassword"/>
            <c:if test="${not empty error.passwordError}">
                <text style="color: red">${error.passwordError}</text>
            </c:if><br/>
```

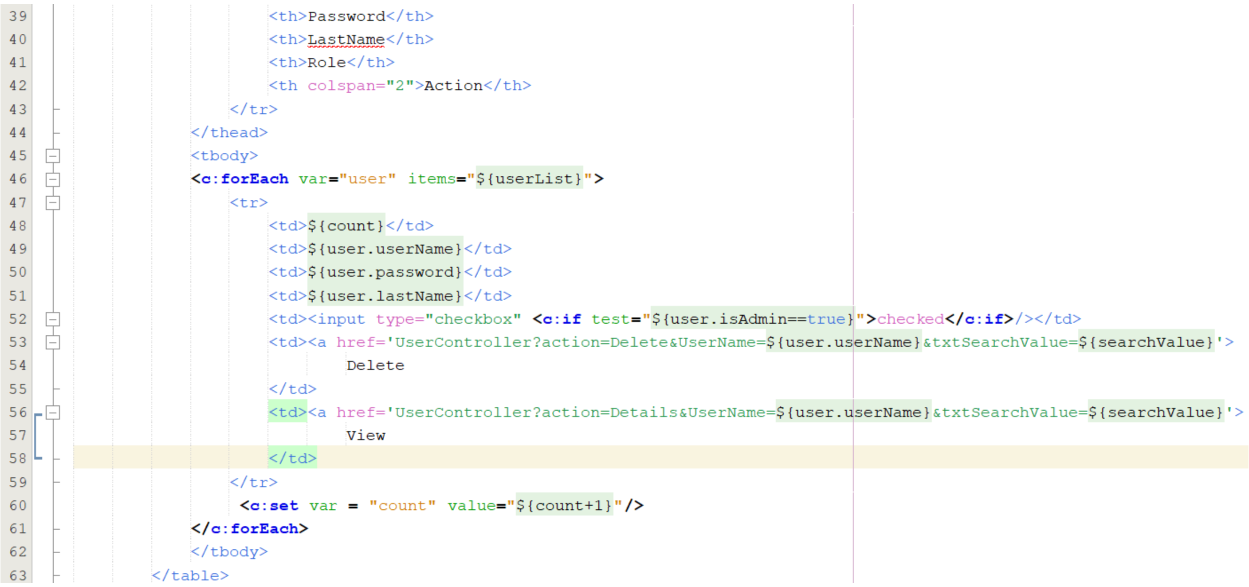


```
            LastName <input type="text" placeholder="Enter last name" name="txtLastName"/>
            <c:if test="${not empty error.lastNameError}">
                <text style="color: red">${error.lastNameError}</text>
            </c:if><br/>
            <input type="checkbox" name="chkIsAdmin" disabled="true" />isAdmin<br/>
            <input type="submit" value="Create" name="action" /></br>
            <a href='Login.jsp'>Back</a></br>
        </form>
    </body>
</html>
```

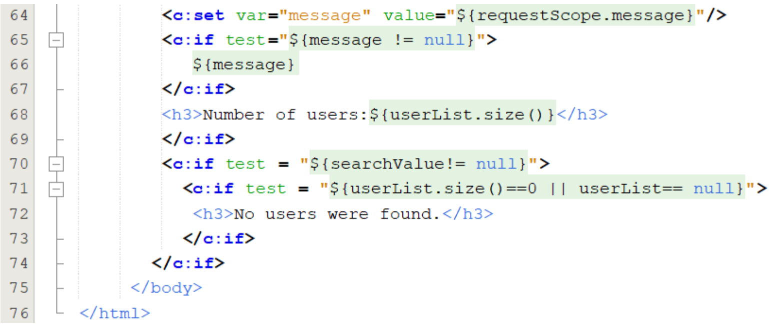
- **Search.jsp page**



```
    Author     : SwordLake
--%>
<%@page import="Models.DTO.User"%>
<%@page import="java.util.List"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<!DOCTYPE html>
<html>
    <...4 lines />
    <body>
        <c:set var="userLoggedIn" value="${userLoggedIn}"/>
        <c:if test="${userLoggedIn!=null}">
            <c:set var="lastName" value="${userLoggedIn.lastName}"/>
        </c:if>
        <c:set var="searchValue" value="${param.txtSearchValue}"/>
        <h3>Welcome to <text style="color: red">${lastName}</text></h3>
        <form method="post">
            <input type="submit" formaction="LogoutController" value="Logout"/></br>
        </form>
        <h1>Search user by last name</h1>
        <form action="UserController" method="post">
            Enter search value
            <input type="text" name="txtSearchValue"
                   value="${searchValue!=null?searchValue:""}" /><br/>
            <input type="submit" value="Search" name="action" />
        </form>
        <c:set var="userList" value="${requestScope.SearchResult}"/>
        <c:set var = "count" value="1"/>
        <c:if test = "${userList != null}">
        <table border='1'>
            <thead>
                <tr>
                    <th>No.</th>
                    <th>UserName</th>
```

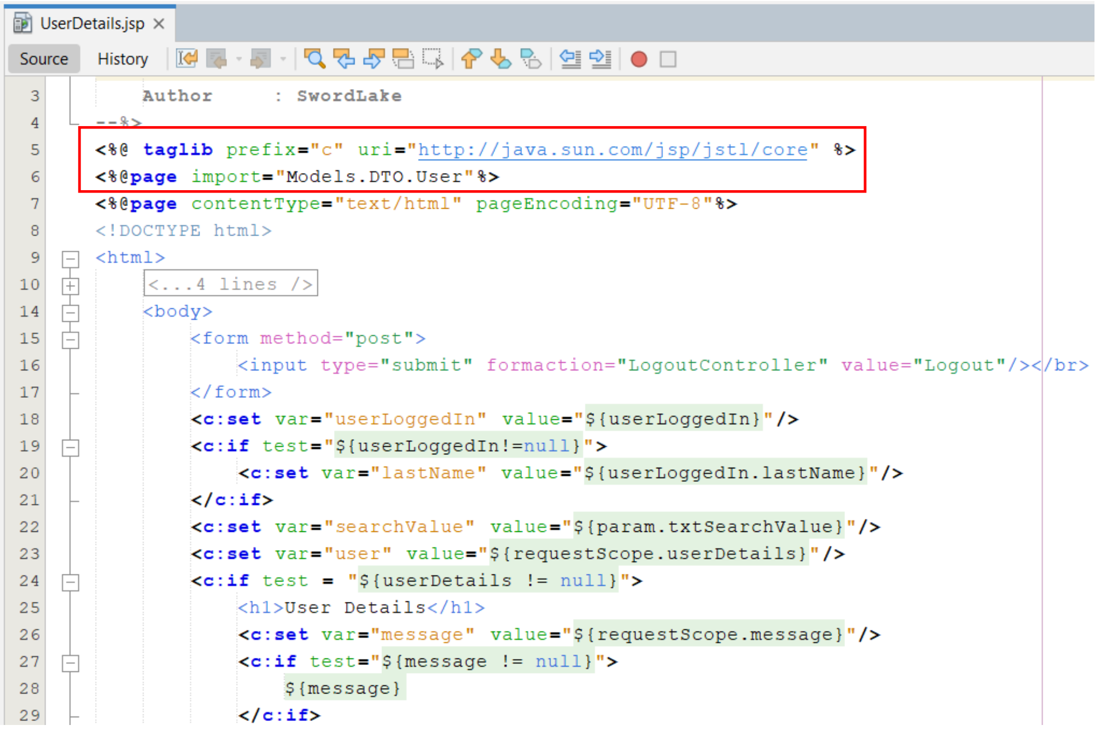


```
                <th>Password</th>
                <th>LastName</th>
                <th>Role</th>
                <th colspan="2">Action</th>
            </tr>
        </thead>
        <tbody>
        <c:forEach var="user" items="${userList}">
            <tr>
                <td>${count}</td>
                <td>${user.userName}</td>
                <td>${user.password}</td>
                <td>${user.lastName}</td>
                <td><input type="checkbox" <c:if test="${user.isAdmin==true}">checked</c:if>/></td>
                <td><a href='UserController?action=Delete&UserName=${user.userName}&txtSearchValue=${searchValue}'>
                        Delete
                </td>
                <td><a href='UserController?action=Details&UserName=${user.userName}&txtSearchValue=${searchValue}'>
                        View
                </td>
            </tr>
             <c:set var = "count" value="${count+1}"/>
        </c:forEach>
        </tbody>
    </table>
```

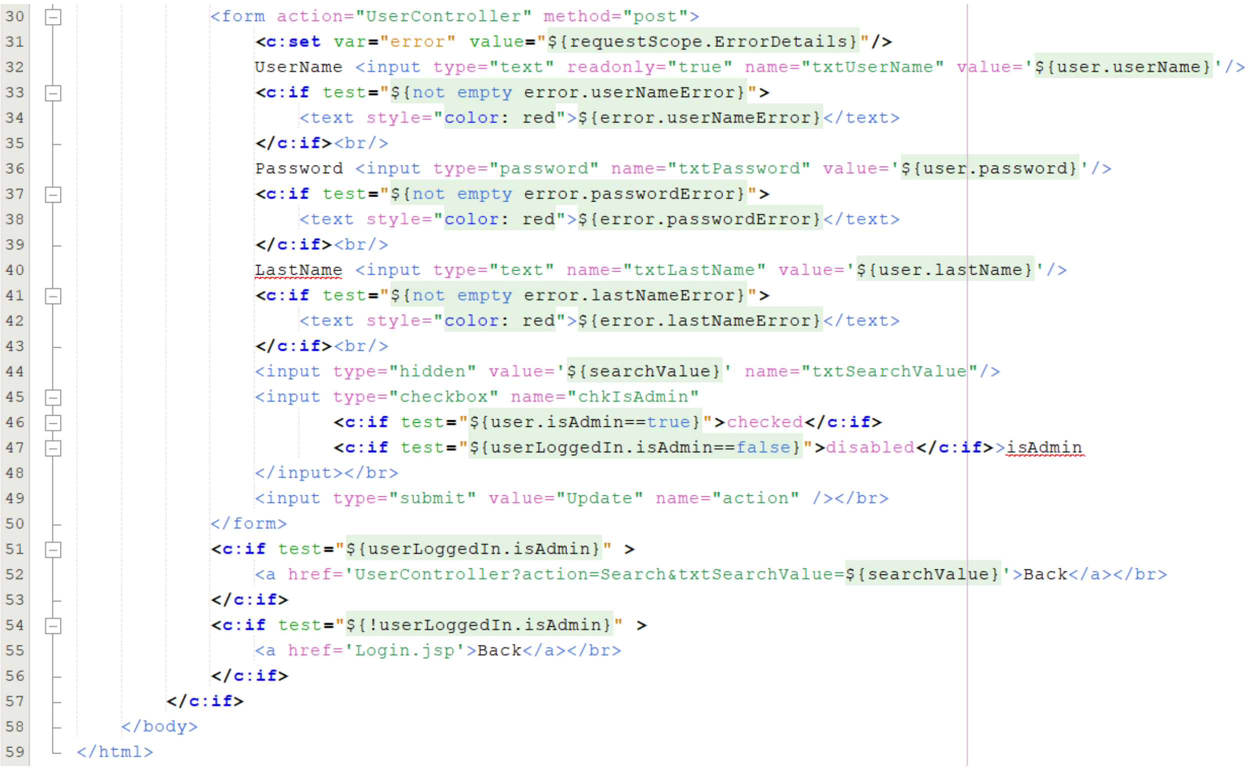


```
        <c:set var="message" value="${requestScope.message}"/>
        <c:if test="${message != null}">
           ${message}
        </c:if>
        <h3>Number of users:${userList.size()}</h3>
        </c:if>
        <c:if test = "${searchValue!= null}">
          <c:if test = "${userList.size()==0 || userList== null}">
           <h3>No users were found.</h3>
          </c:if>
       </c:if>
     </body>
</html>
```

- **UserDetails.jsp page**

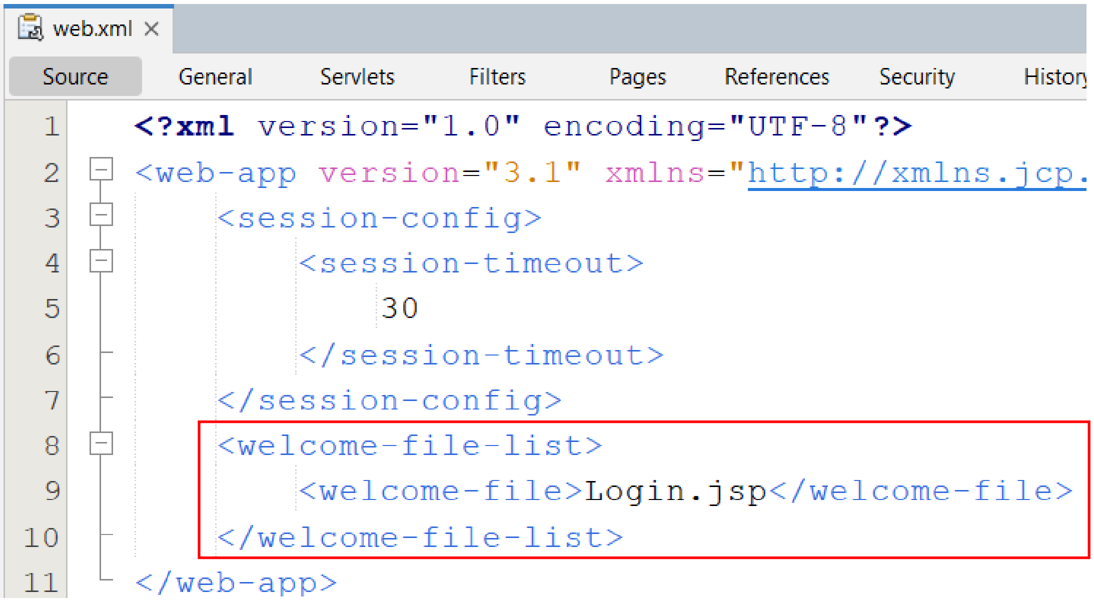


```
    Author      : SwordLake
--%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<%@page import="Models.DTO.User"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <...4 lines />
    <body>
        <form method="post">
            <input type="submit" formaction="LogoutController" value="Logout"/></br>
        </form>
        <c:set var="userLoggedIn" value="${userLoggedIn}"/>
        <c:if test="${userLoggedIn!=null}">
            <c:set var="lastName" value="${userLoggedIn.lastName}"/>
        </c:if>
        <c:set var="searchValue" value="${param.txtSearchValue}"/>
        <c:set var="user" value="${requestScope.userDetails}"/>
        <c:if test = "${userDetails != null}">
            <h1>User Details</h1>
            <c:set var="message" value="${requestScope.message}"/>
            <c:if test="${message != null}">
                ${message}
            </c:if>
```



```
            <form action="UserController" method="post">
                <c:set var="error" value="${requestScope.ErrorDetails}"/>
                UserName <input type="text" readonly="true" name="txtUserName" value='${user.userName}'/>
                <c:if test="${not empty error.userNameError}">
                    <text style="color: red">${error.userNameError}</text>
                </c:if><br/>
                Password <input type="password" name="txtPassword" value='${user.password}'/>
                <c:if test="${not empty error.passwordError}">
                    <text style="color: red">${error.passwordError}</text>
                </c:if><br/>
                LastName <input type="text" name="txtLastName" value='${user.lastName}'/>
                <c:if test="${not empty error.lastNameError}">
                    <text style="color: red">${error.lastNameError}</text>
                </c:if><br/>
                <input type="hidden" value='${searchValue}' name="txtSearchValue"/>
                <input type="checkbox" name="chkIsAdmin"
                       <c:if test="${user.isAdmin==true}">checked</c:if>
                       <c:if test="${userLoggedIn.isAdmin==false}">disabled</c:if>>isAdmin
                </input></br>
                <input type="submit" value="Update" name="action" /></br>
            </form>
            <c:if test="${userLoggedIn.isAdmin}" >
                <a href='UserController?action=Search&txtSearchValue=${searchValue}'>Back</a></br>
            </c:if>
            <c:if test="${!userLoggedIn.isAdmin}" >
                <a href='Login.jsp'>Back</a></br>
            </c:if>
        </c:if>
    </body>
</html>
```

<u>Step 06</u>. Open the **web.xml** in the WEB-INF folder then update as the follows:



```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1" xmlns="http://xmlns.jcp.
    <session-config>
        <session-timeout>
            30
        </session-timeout>
    </session-config>
    <welcome-file-list>
        <welcome-file>Login.jsp</welcome-file>
    </welcome-file-list>
</web-app>
```

<u>Step 07</u>. Right-click on **Lab06_ManageUsersByMVC2_JSTL** project, select Run to run the web app then test all functions.