Servlet/JSP/JDBC Connect #2

Agenda

1 **Create a Web Application using Servlets and JDBC**

Objectives

At the end of this session, you will be able to:

- Understand interaction of Servlet with database using JDBC

Connect#1 Recap

wipro

Connect#1 Recap

In our previous connect we have done the following

1. Created a login page using HTML

2. Applied style to login page using CSS

3. Validated the values in the textboxes using JavaScript

4. Created a Servlet Page to receive the request, validate the data and provide a response

Connect#1 Recap

http://localhost:8666/MyWebApplication/Login.html

User Name: Admin
Password: ••••••••
Login

http://localhost:8666/MyWebApplication/LoginServlet?uname=Admin&pwd=wipro@123

Welcome Admin

http://localhost:8666/MyWebApplication/Login.html

User Name: Hello
Password: ••••••••
Login

http://localhost:8666/MyWebApplication/LoginServlet?uname=Hello&pwd=jljkljkj

Invalid User name or password
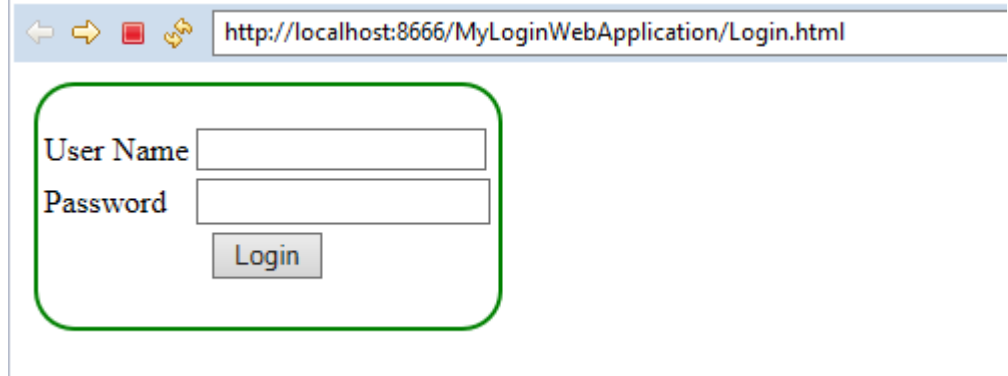
Adding JDBC code to Servlet

Login Application with JDBC

To do list:

1. Reuse the login page from earlier demo

2. Create a table "user_table" in oracle and add sample records

3. Modify the Servlet to write JDBC code to validate the user details from user_table

1. Reuse Login Page – No change

```html
<form action="LoginServlet" name="LoginForm">
<div>
<br>
<table>
<tr><td>User Name</td><td> <input type="text" name="uname"/></td></tr>
<tr><td>Password </td><td> <input type="password" name="pwd"/></td></tr>
<tr><td colspan="2" align="center"><input type="submit" value="Login" onclick="return
loginValidation()"/></td></tr>
</table>
</div>
</form>
```

http://localhost:8666/MyLoginWebApplication/Login.html

User Name

Password

Login

2. Create user_table in the database and add records

- SQL> create table user_table (username varchar2(20), password varchar2(20));

- SQL> insert into user_table values('Admin','wipro@123');

- SQL> insert into user_table values('PJP','PJP@123');

- SQL> commit;

3. Add JDBC code in Servlet

```java
public class LoginServlet extends HttpServlet {
protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException,
IOException {
try{
PrintWriter out = response.getWriter();
String userName = request.getParameter("uname");
String password = request.getParameter("pwd");
Class.forName("oracle.jdbc.driver.OracleDriver");
Connection con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:orcl","scott","tiger");
String sql = "select * from user_table where username=? and password=?";
PreparedStatement st = con.prepareStatement(sql);
        st.setString(1, userName);
        st.setString(2, password);
        ResultSet rs = st.executeQuery();
        if(rs.next())
          out.println("<font color=green><b>Welcome User!</b></font>");
        else
          out.println("<font color=red><b>Invalid user name or password</b></font>");
out.close();
}
catch(Exception e){e.printStackTrace();}
}
}
```
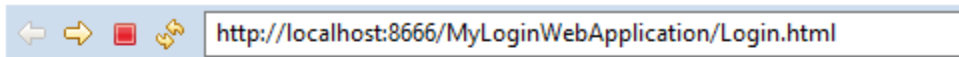
Add ojdbc5.jar to WEB-INF/lib folder

Output

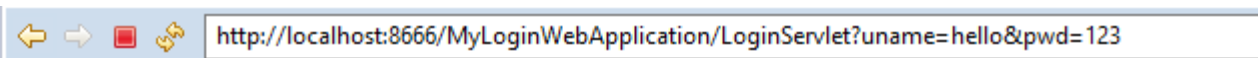http://localhost:8666/MyLoginWebApplication/Login.html

User Name: Admin

Password: ••••••••

Login

http://localhost:8666/MyLoginWebApplication/LoginServlet?uname=Admin&pwd=wipro@123

Welcome User!

Output

http://localhost:8666/MyLoginWebApplication/Login.html

User Name hello
Password ●●●
Login

http://localhost:8666/MyLoginWebApplication/LoginServlet?uname=hello&pwd=123
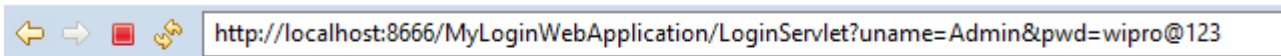
Invalid user name or password

Using MVC design pattern

Using MVC design Pattern

To do list:

- Create a UserBean in bean package
- Create a DBUtil class in util package
- Create a UserDAO in dao package
- Update servlets package to controller
- Modify Servlet

4. Using MVC design pattern

- MyLoginWebApplication
  - Deployment Descriptor: MyLoginWebApplication
  - JAX-WS Web Services
  - Java Resources
    - src
      - com.wipro.bean
        - UserBean.java
      - com.wipro.controller
        - LoginServlet.java
      - com.wipro.dao
        - UserDAO.java
      - com.wipro.util
        - DBUtil.java
    - Libraries
  - JavaScript Resources
  - build
  - WebContent
    - META-INF
    - WEB-INF
    - Fail.html
    - Login.html
    - Success.html

UserBean

```java
public class UserBean {
private String userName;
private String password;

public UserBean() {
}

public String getUserName() {
return userName;
}

public void setUserName(String userName) {
this.userName = userName;
}

public String getPassword() {
return password;
}

public void setPassword(String password) {
this.password = password;
}
}
```

DBUtil

```java
public class DBUtil {
    public static Connection getConnection(){
  Connection con = null;
      try{
 Class.forName("oracle.jdbc.driver.OracleDriver");
 con =
DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:orcl","scott","tiger");
      }
 catch(Exception e){e.printStackTrace();}}
 return con;
    }
}
```
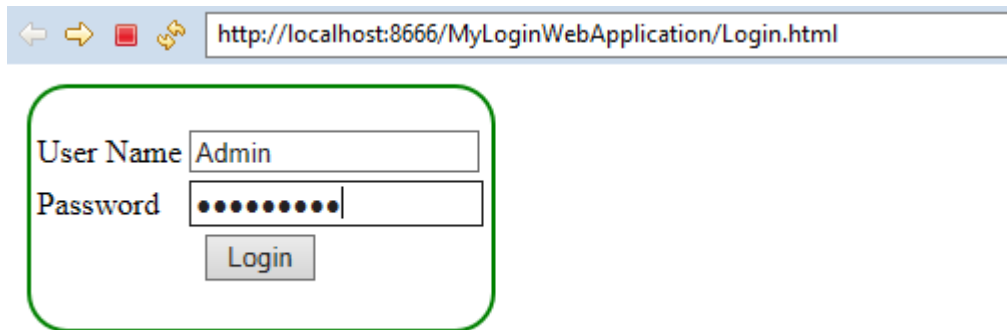
UserDAO

```java
public class UserDAO {
public String checkUser(UserBean userBean){
    String status = "Fail";
    try{
    String sql = "select * from user_table where username=? and password=?";
    Connection con = DBUtil.getConnection();
        PreparedStatement st = con.prepareStatement(sql);
        st.setString(1, userBean.getUserName());
        st.setString(2, userBean.getPassword());
        ResultSet rs = st.executeQuery();
        if(rs.next())
            status = "Success";
        st.close();
        con.close();
    }
    catch(Exception e){e.printStackTrace();}
        return status;
    }

}
```

LoginServlet

```java
public class LoginServlet extends HttpServlet {

protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
PrintWriter out = response.getWriter();
String userName = request.getParameter("uname");
String password = request.getParameter("pwd");
UserBean userBean = new UserBean();
userBean.setUserName(userName);
userBean.setPassword(password);
UserDAO dao = new UserDAO();
String status = dao.checkUser(userBean);
if(status.equals("Success"))
{
response.sendRedirect("Success.html");
}
else{
response.sendRedirect("Fail.html");
}
out.close();
}
}
```
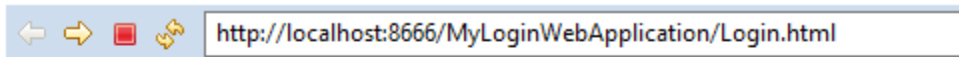
Output

http://localhost:8666/MyLoginWebApplication/Login.html

User Name Admin

Password ●●●●●●●●

Login

http://localhost:8666/MyLoginWebApplication/Success.html

Welcome User!

Output

http://localhost:8666/MyLoginWebApplication/Login.html

User Name: hello

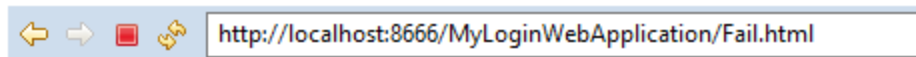Password: •••

Login

http://localhost:8666/MyLoginWebApplication/Fail.html
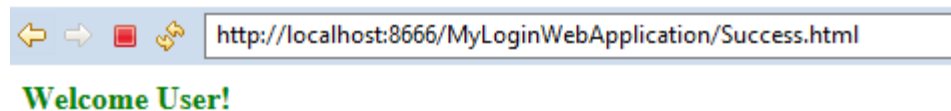
Invalid user name or password

Knowledge Check

Knowledge Check

- **Which of the following method is used to load the JDBC driver?**

    1. Class.forName()

    2. DriverManager.getConnection()

    3. Con.prepareStatement()

- **Which of the following method is used to establish a connection with database?**

    1. Class.forName()

    2. DriverManager.getConnection()

    3. Con.prepareStatement()

Knowledge Check

- **What is the return type of DriverManager.getConnection() method?**
  1. Connection
  2. String
  3. Statement

- **What is the return type of executeUpdate() method?**
  1. String
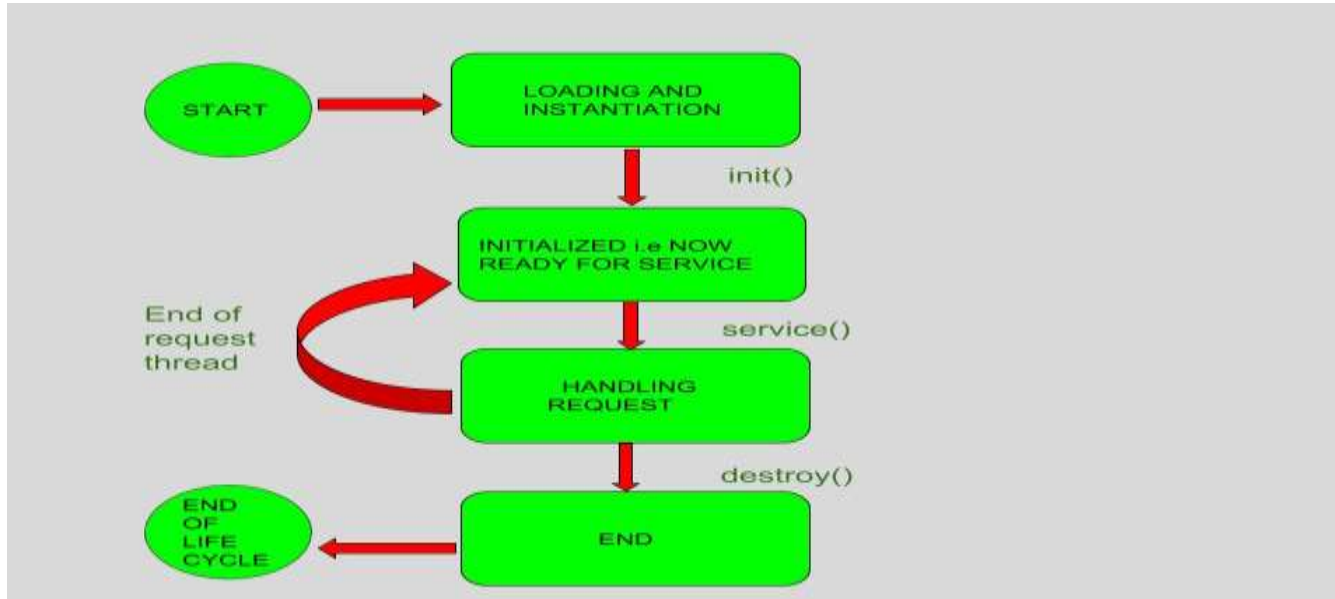 2. boolean
  3. int

Exercise

Exercise

- **Create a Menu.html with the following links**

1. **Insert a Student**
2. **Update a Student**
3. **Delete a Student**
4. **Select a Student**
5. **Select All Students**

If the links are clicked appropriate html with relevant controls should open and it should perform the given operation

You can refer https://www.javatpoint.com/crud-in-servlet

Servlet life cycle

Thank you