

# STRUTS 2.0 BASIC PART 1

**START** >>



# Learning Goals

After the course, attendees will be able to:

- ▶ Understand Struts
- ▶ Know how to write a Web application with Struts 2.0



# ***Table of contents***

- ▶ **Overview**
- ▶ **Struts 2.0 architecture**
- ▶ **First example Struts 2.0:**
  - Create a Dynamic web project**
  - struts.xml, web.xml, resources bundle**
  - Actions class**



# *Trainee's missions*

To complete this course and achieve goals, trainees must:

- ▶ Read Lecture, Reference
- ▶ Do Exercises
- ▶ Take quiz
- ▶ Complete Assignment

- Struts2 is popular and mature web application framework based on the MVC design pattern.
- The WebWork framework started off with Struts framework as the basis and its goal was to offer an enhanced and improved framework built on Struts **to make web development easier for the developers.**

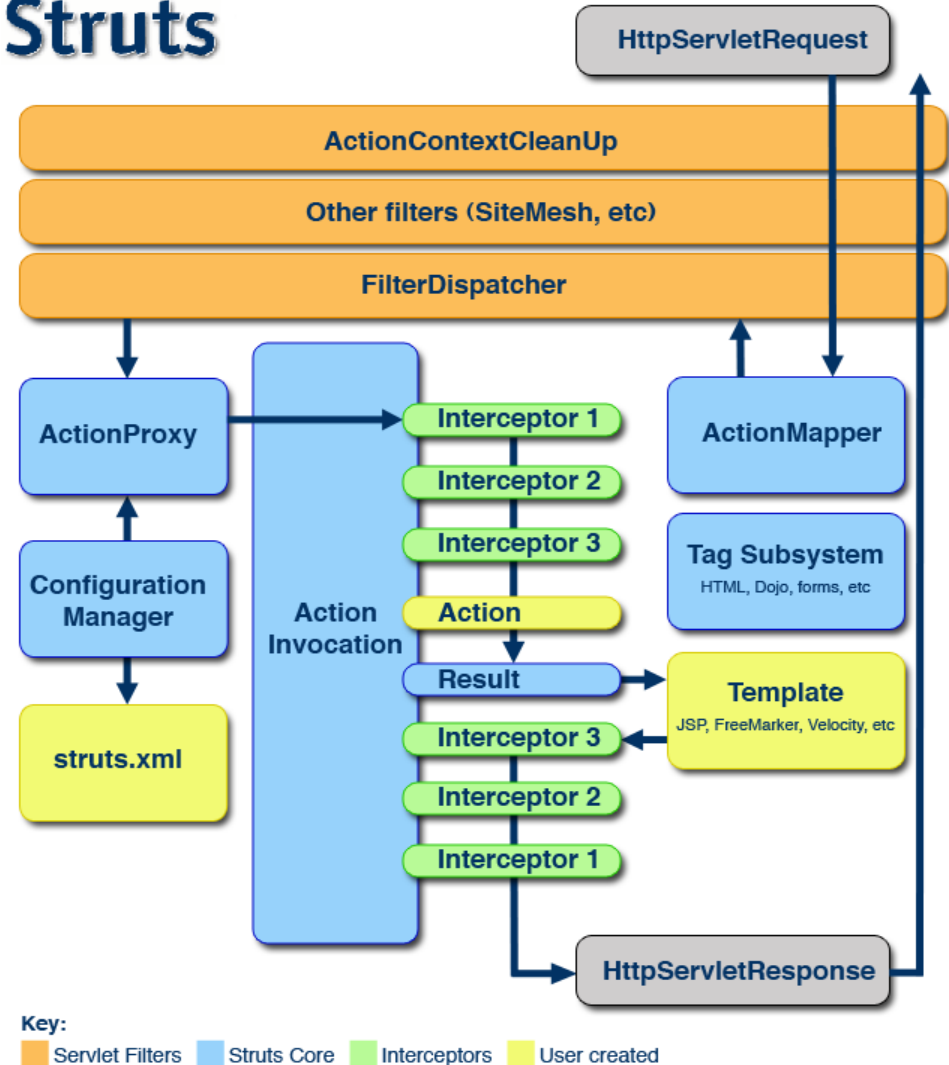
- The Webwork framework and the Struts community joined hands to create the famous Struts2 framework.



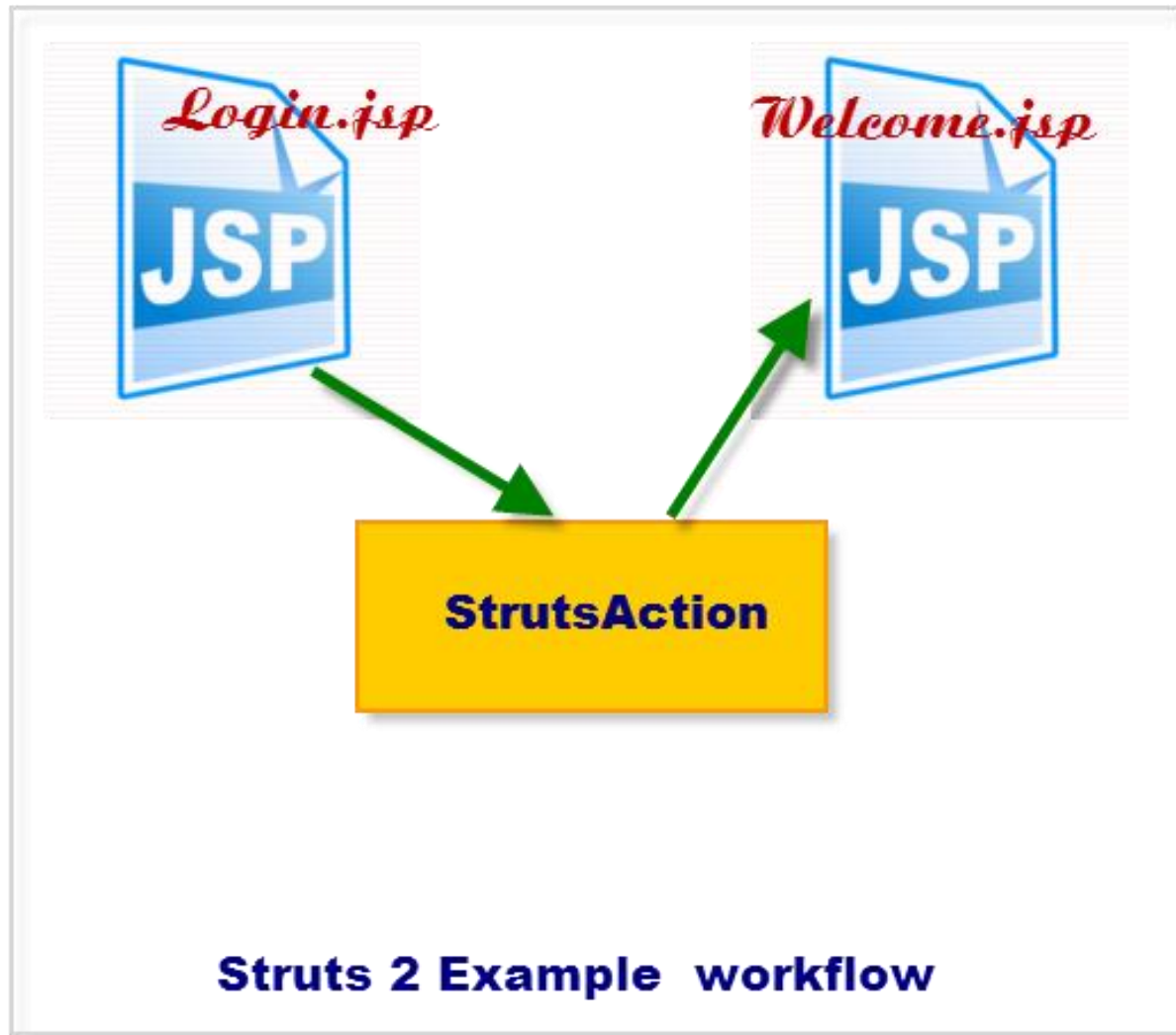
Is a pull-MVC framework. MVC pattern in Struts2 is realized with following five core component:

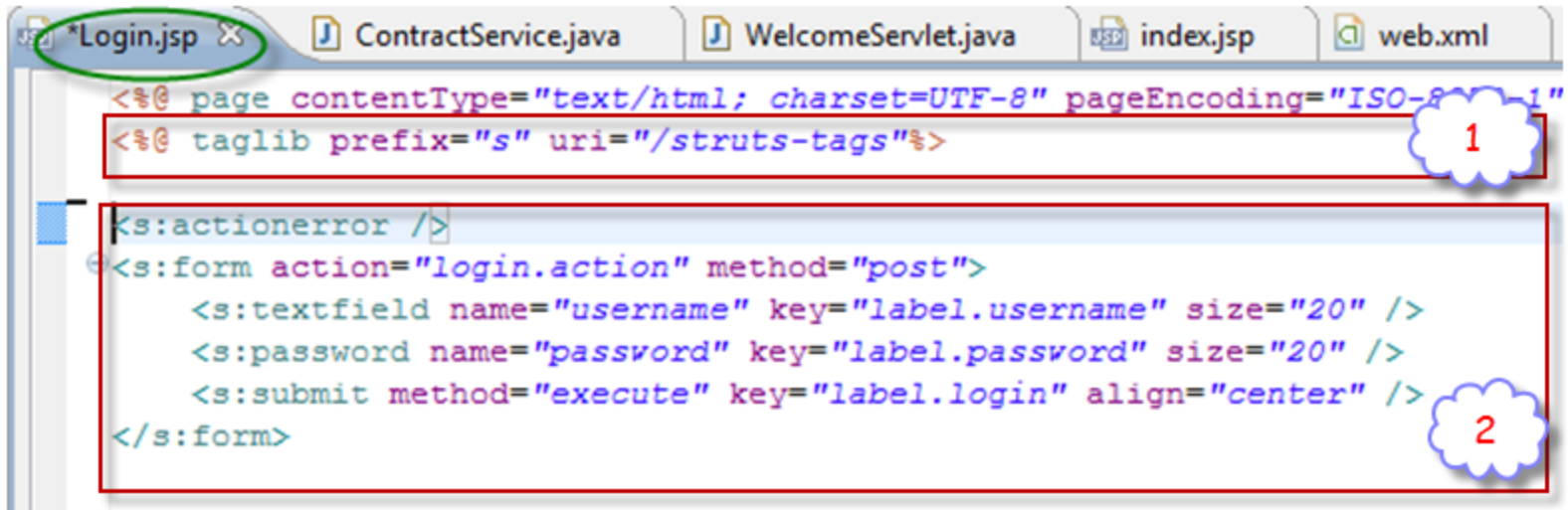
- ActionMapper
- FilterDispatcher
- Configuration Manager
- ActionInvocation
- Tag Subsystem

## Struts



# Create Struts2 Example





The screenshot shows an IDE with several tabs: \*Login.jsp (selected and circled in green), ContractService.java, WelcomeServlet.java, index.jsp, and web.xml. The code in Login.jsp is as follows:

```
<%@ page contentType="text/html; charset=UTF-8" pageEncoding="ISO-8859-1"%>
<%@ taglib prefix="s" uri="/struts-tags"%>

<s:actionerror />
<s:form action="login.action" method="post">
    <s:textfield name="username" key="label.username" size="20" />
    <s:password name="password" key="label.password" size="20" />
    <s:submit method="execute" key="label.login" align="center" />
</s:form>
```

Two callouts are present: Callout 1 points to the page and taglib declarations, and Callout 2 points to the form and its components.



The screenshot shows the same IDE with tabs: \*Welcome.jsp (selected and circled in green), \*Login.jsp, ContractService.java, WelcomeServlet.java, and index.jsp. The code in Welcome.jsp is as follows:

```
<%@ page contentType="text/html; charset=UTF-8"%>
<%@ taglib prefix="s" uri="/struts-tags"%>

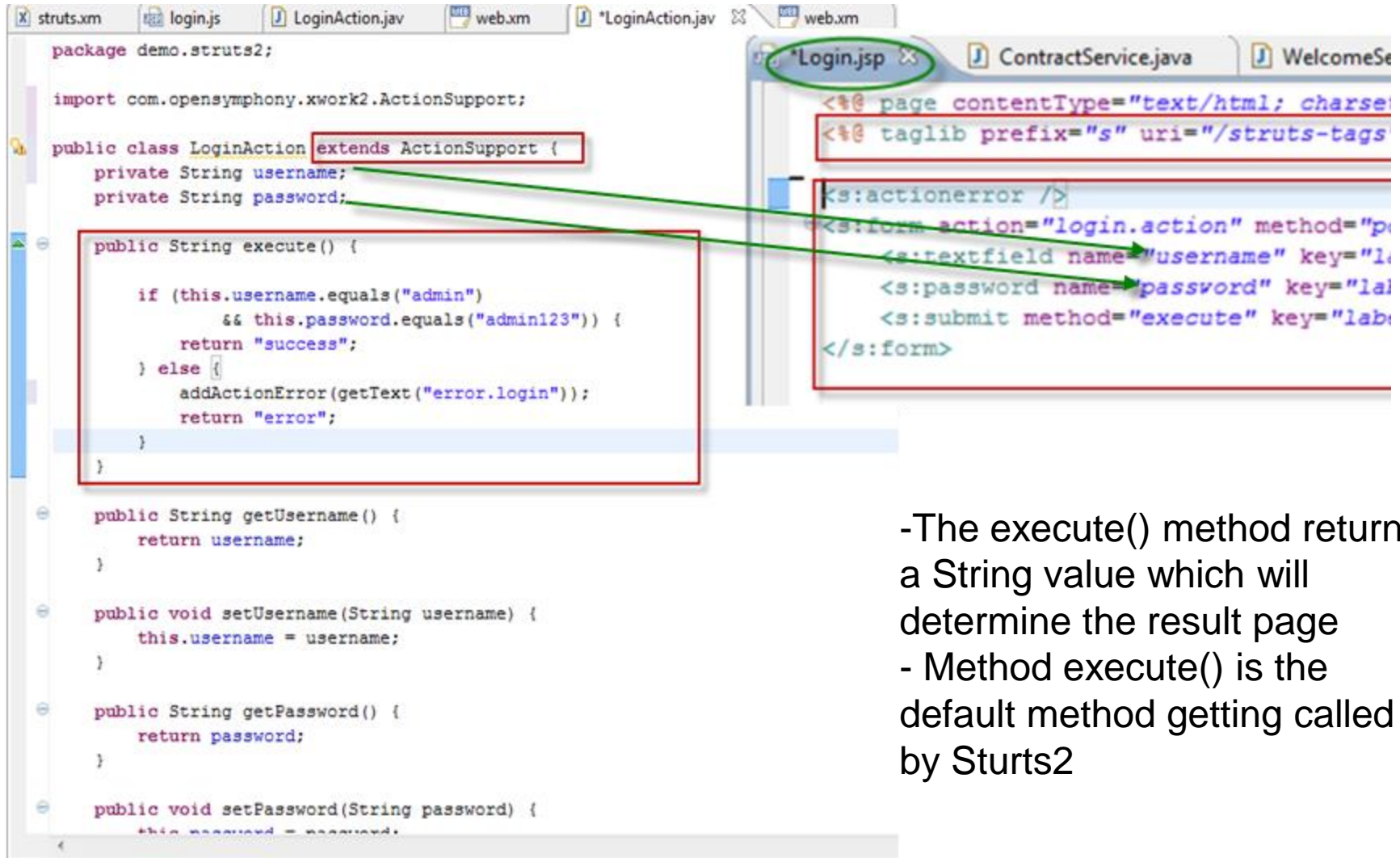
<html>
<head>
<title>Welcome</title>
</head>

<body>
    <h2>Hello, <s:property value="username" />...!</h2>

</body>
</html>
```



# LoginAction



```

package demo.struts2;

import com.opensymphony.xwork2.ActionSupport;

public class LoginAction extends ActionSupport {
    private String username;
    private String password;

    public String execute() {

        if (this.username.equals("admin")
            && this.password.equals("admin123")) {
            return "success";
        } else {
            addActionError(getText("error.login"));
            return "error";
        }
    }

    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;
    }
}

```

```

<%@ page contentType="text/html; charset="...
<%@ taglib prefix="s" uri="/struts-tags" %>

<s:actionerror />
<s:form action="login.action" method="post">
    <s:textfield name="username" key="label.username" />
    <s:password name="password" key="label.password" />
    <s:submit method="execute" key="label.submit" />
</s:form>

```

- The execute() method returns a String value which will determine the result page
- Method execute() is the default method getting called by Struts2

# web.xml configuration

Default in WebContent/WEB-INF folder.

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app id="WebApp_9" version="2.4"
  xmlns="http://java.sun.com/xml/ns/j2ee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/j2ee http://java.sun.com/xml/n

  <display-name>Struts2 Application</display-name>
  <filter>
    <filter-name>struts2</filter-name>
    <filter-class>
      org.apache.struts2.dispatcher.FilterDispatcher
    </filter-class>
  </filter>
  <filter-mapping>
    <filter-name>struts2</filter-name>
    <url-pattern>/*</url-pattern>
  </filter-mapping>
  <welcome-file-list>
    <welcome-file>Login.jsp</welcome-file>
  </welcome-file-list>

</web-app>
```



# Application.properties

The screenshot displays an IDE interface with the following components:

- Project Explorer:** Shows the project structure for 'StrutsHelloWorld'. The 'resources' folder is expanded, and 'ApplicationResources.properties' is highlighted with a red box.
- struts.xml:** The top editor shows the configuration for the login action:

```
label.username= Username
label.password= Password
label.login= Login
error.login= Invalid Username/Password. Please try again.
```

This code is enclosed in a red box.
- Login.jsp:** The bottom editor shows the JSP code for the login page. A green circle highlights the 'Login.jsp' tab. A green arrow points from the 'error.login' property in 'struts.xml' to the '<%@ page contentType="text/html; charset=UTF-8" pageEncoding="ISO-8" %>
<%@ taglib prefix="s" uri="/struts-tags"%>

<s:actionerror />
<s:form action="login.action" method="post">
 <s:textfield name="username" key="label.username" size="20" />
 <s:password name="password" key="label.password" size="20" />
 <s:submit method="execute" key="label.login" align="center" />
</s:form>

# struts.xml configuration

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE struts PUBLIC
    "-//Apache Software Foundation//DTD Struts Configuration 2.0//EN"
    "http://struts.apache.org/dtds/struts-2.0.dtd">

<struts>
    <constant name="struts.enable.DynamicMethodInvocation"
        value="false" />
    <constant name="struts.devMode" value="false" />
    <constant name="struts.custom.i18n.resources"
        value="ApplicationResources" />

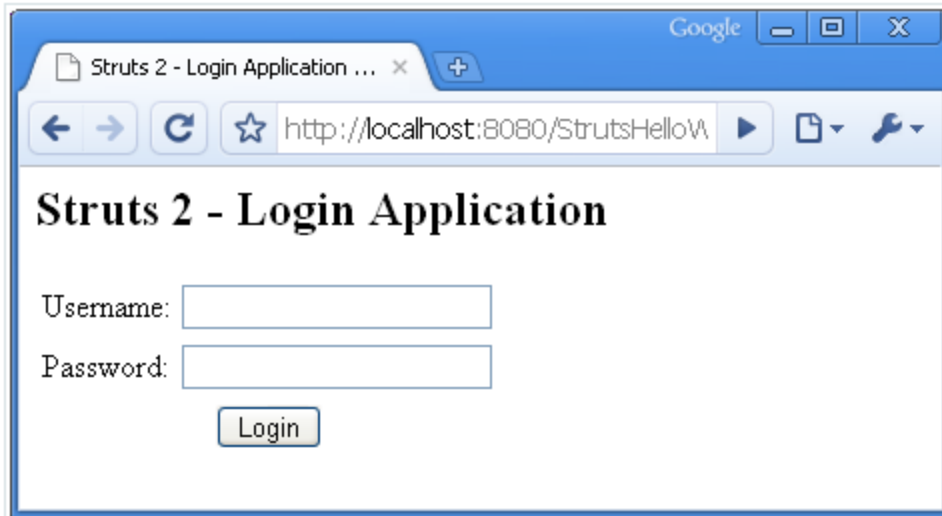
    <package name="default" extends="struts-default" namespace="/">
        <action name="login"
            class="net.viralpatel.struts2.LoginAction">
            <result name="success">Welcome.jsp</result>
            <result name="error">Login.jsp</result>
        </action>
    </package>
</struts>
```

1

2



# Run Application



Struts 2 - Login Application

Username:


Password:

Login

```
public String execute() {  
    if (this.username.equals("admin")  
        && this.password.equals("admin123")) {  
        return "success";  
    } else {  
        addActionError(getText("error.login"));  
        return "error";  
    }  
}
```

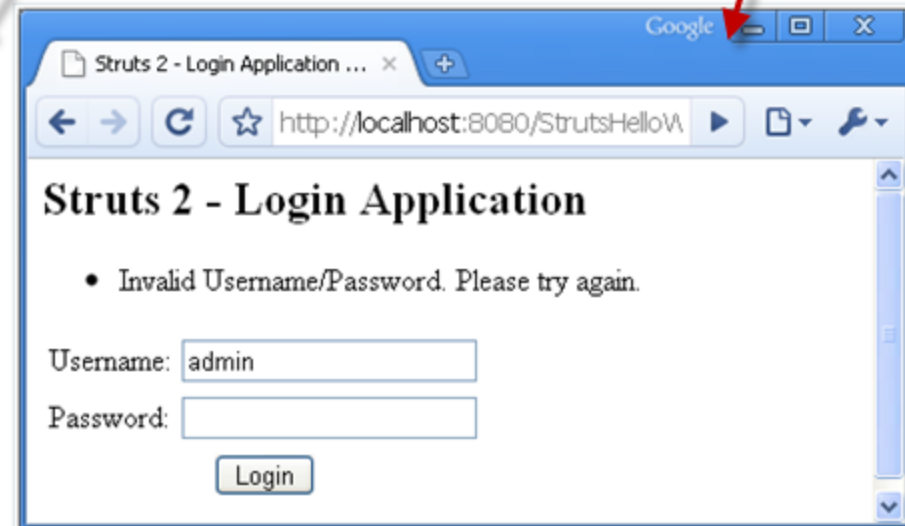
Login success

Login error



Welcome

Howdy, admin...!



Struts 2 - Login Application

- Invalid Username/Password. Please try again.

Username:

Password:

Login

- Struts2: a web application framework based on the MVC
- Support POJO Action, **execute()** is the default method getting called by Struts2
- Action class can extend **Support Action**
- Use **ResourceBundle** to help in putting the static content away from the source file
- Struts 2 uses struts.xml configuration file