



STRUTS - INTRO

NOTES

- STRUTS USED ON COMPLEX FRONTEND APPS.
- IT USES MVC MODEL
- Controller is implemented via servlet JAVA.
- This configuration file (`struts-config.xml`) is essential for setting up the MVC (Model-View-Controller) architecture in Struts, where a single servlet acts as the controller, and JSPs are used for the view.
- Each url we associate to it an action.

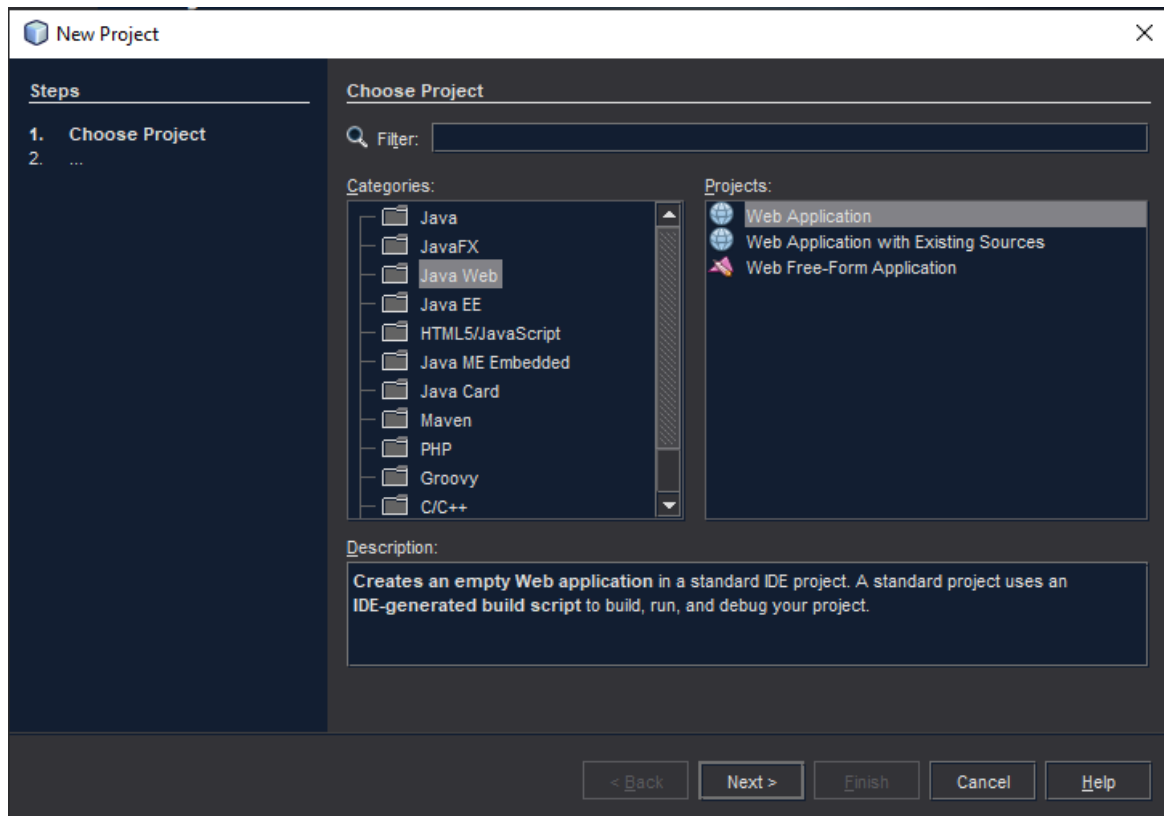
QUESTIONS

▼ STRUTS:

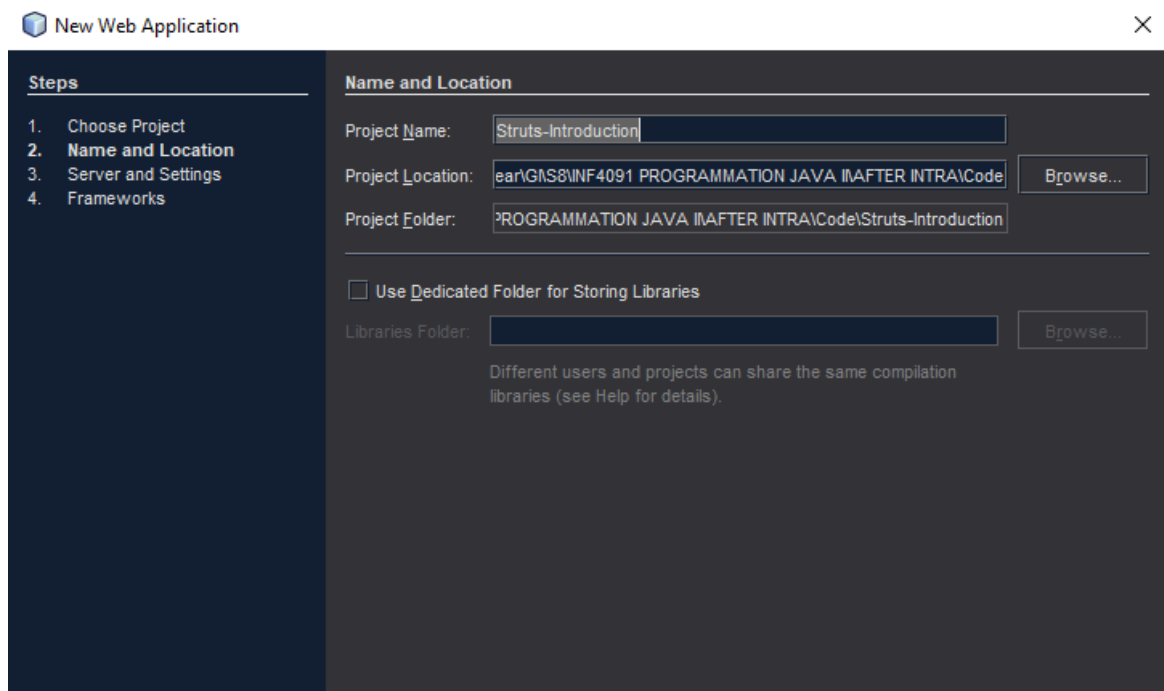
▼ How to validate data? with validate attribute in action

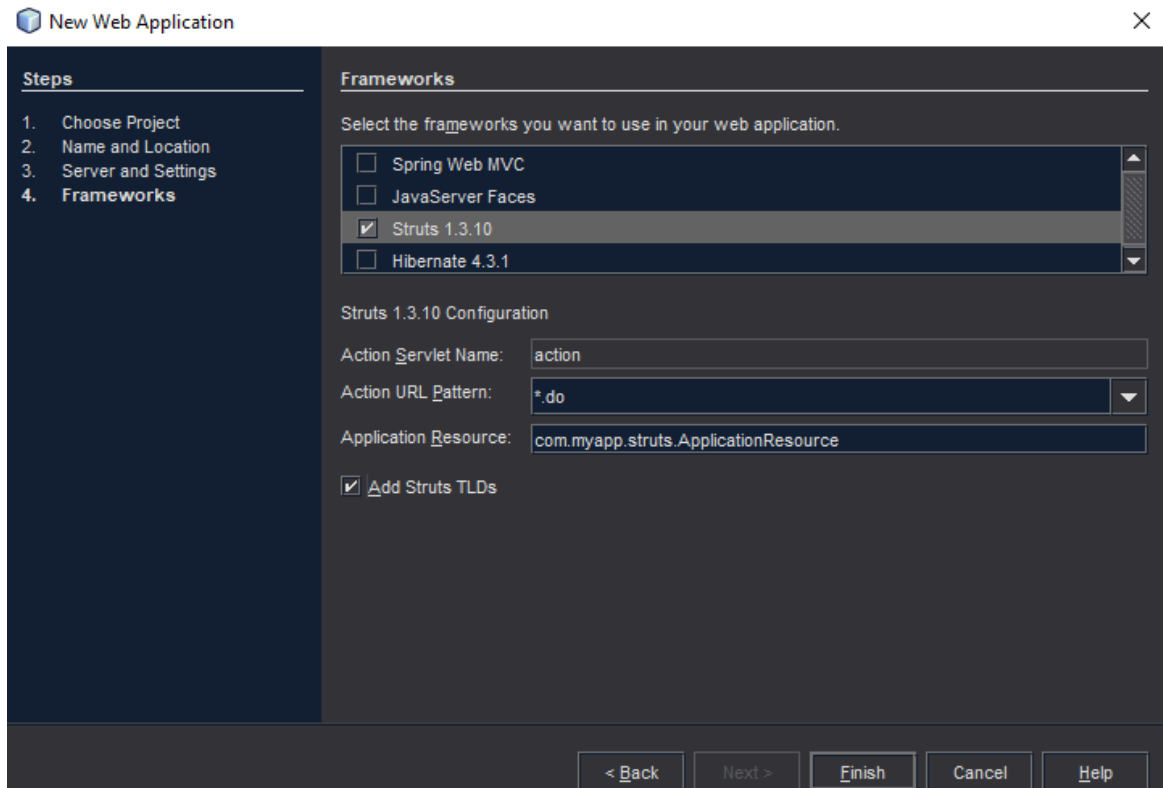
PROJECT WALKTHROUGH (Factorial)

▼ CREATE PROJECT STRUTS

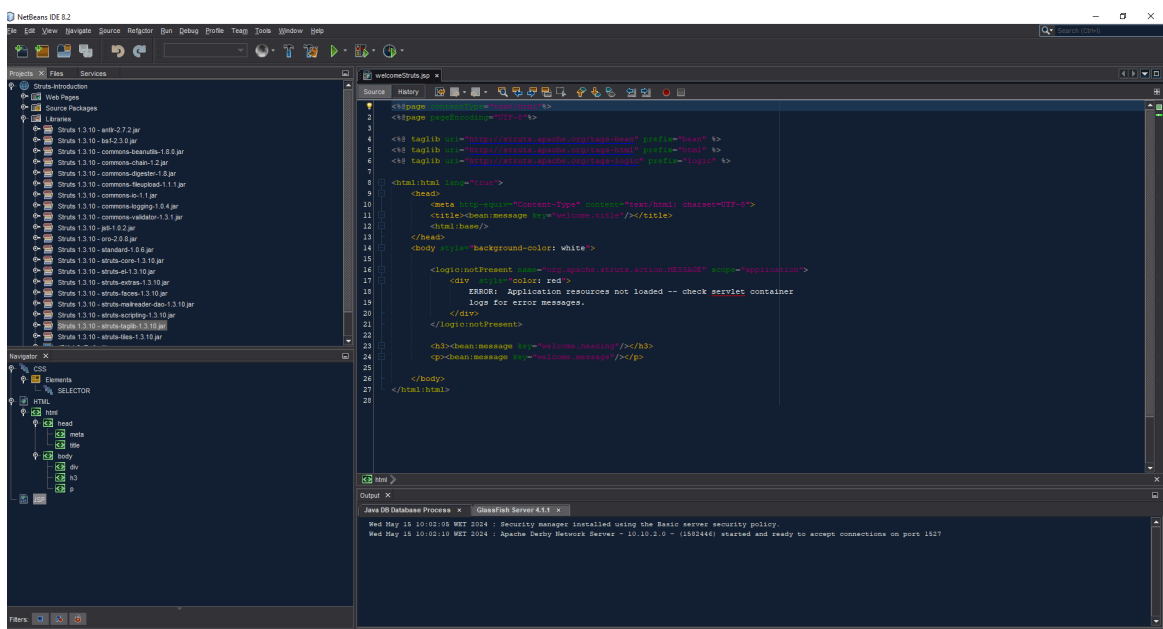


JAVA WEB, WEB APP





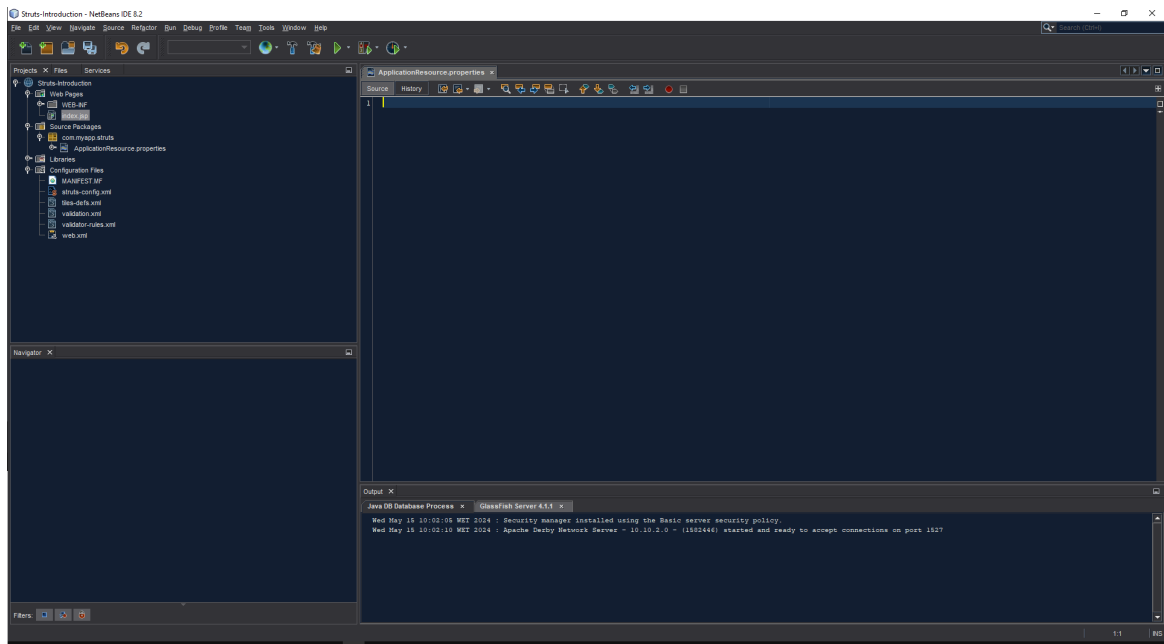
Tag Library Descriptors (to use struts tags, you'll need to check that option)



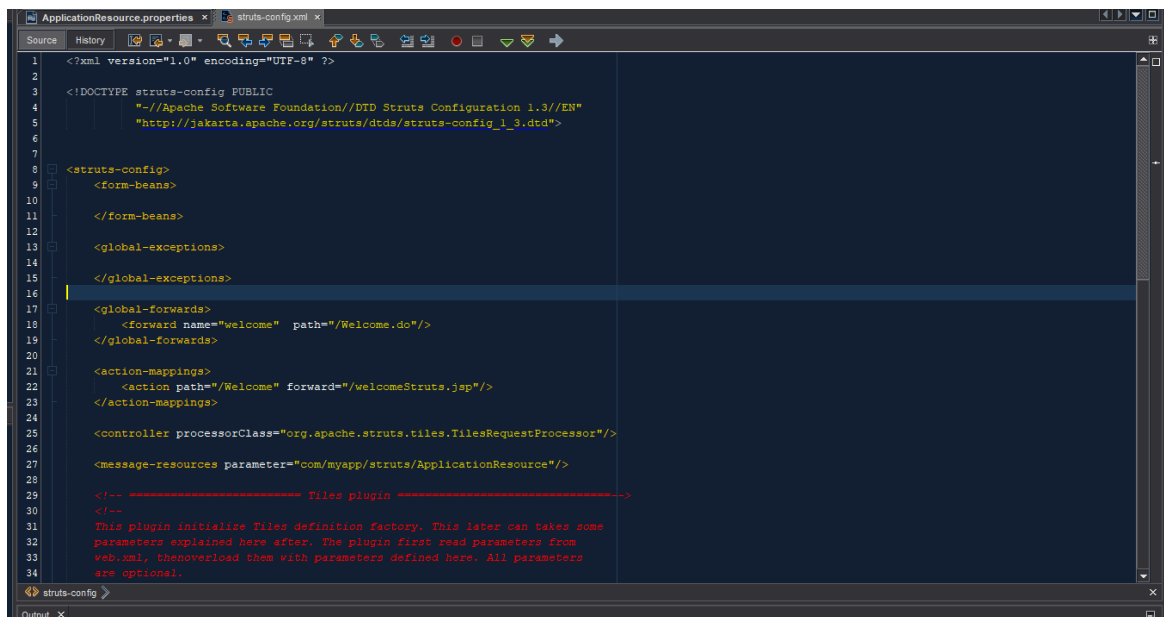
check libraries if you forgot something u won't see all these libraries, and by default the first page is `WelcomeStruts.jsp`

▼ MANIPULATION

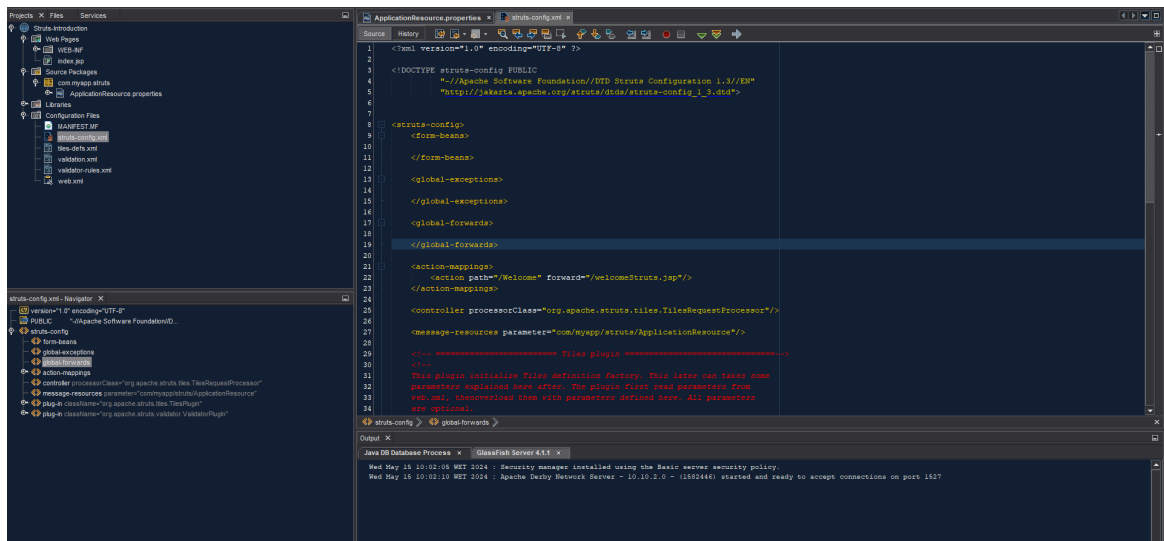
Just delete the page `WelcomeStruts.jsp` and the content in `ApplicationResource.properties`



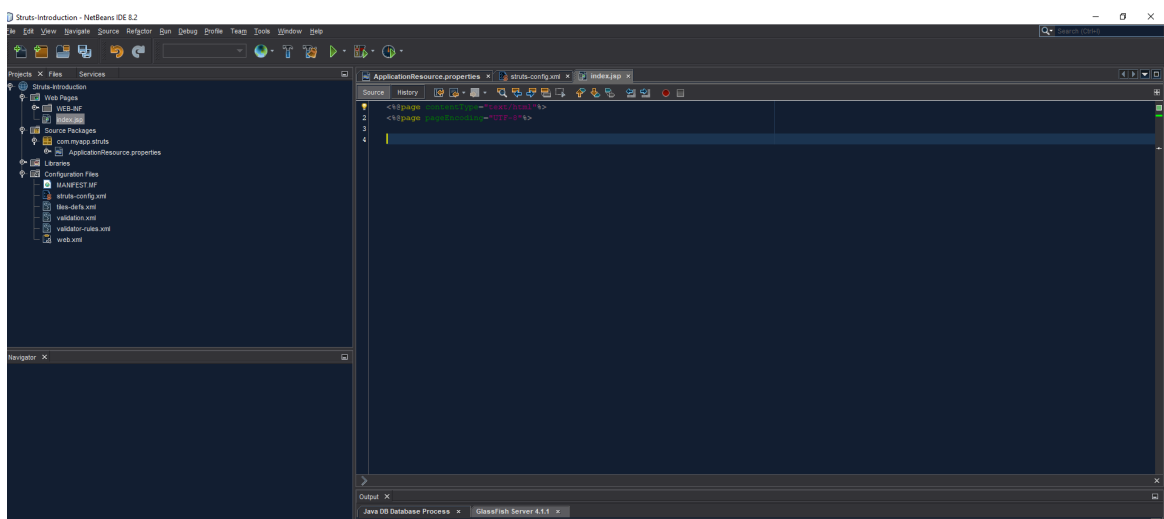
- In `struts-config.xml` Delete the action `welcome.do` as we didn't create it and it was added by default in our project



before deleting the action



After deleting and saving!

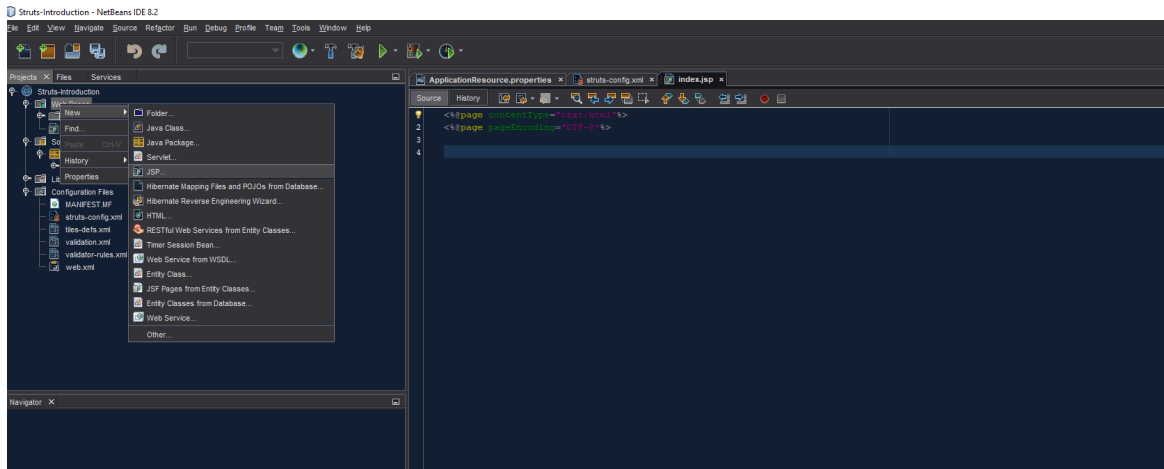


Delete the jsp forward and start creating your own view with the controller...

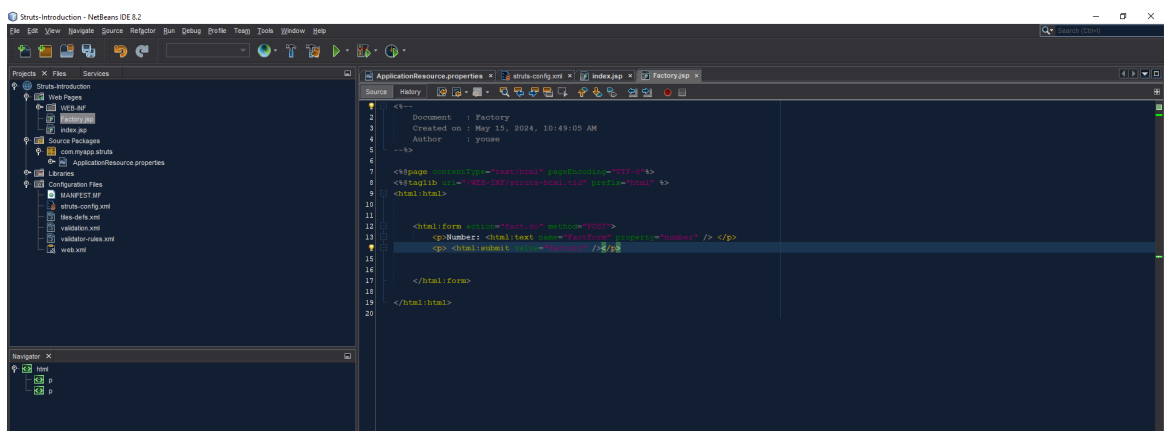
▼ CREATE JSP PAGE

So, in this first example we will be creating a page that calculate factory of a number...

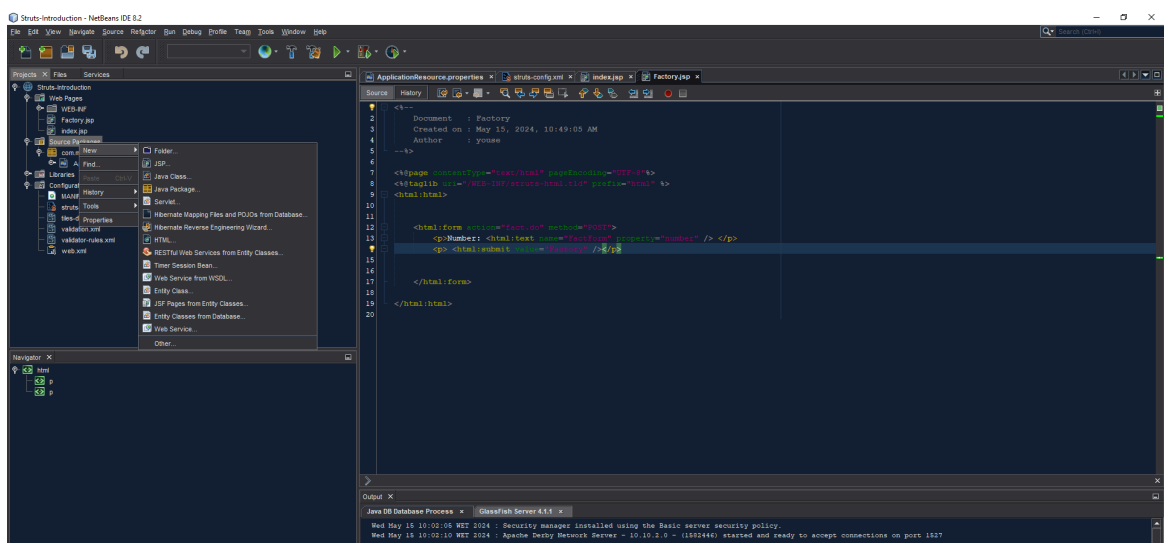
- **Example:** $3! = 6$
- Let's start by creating the jsp page



- Fill it with struts tags, not html



- Create our packages for organi purposes



I created 3 packages: DAO(Data Access Object), Controller and Model

New Struts ActionForm Bean

Steps

1. Choose File Type
2. Name and Location

Name and Location

Class Name:

Project:

Location:

Package:

Created File:

Superclass:

Configuration File:

the same name as the model in the view

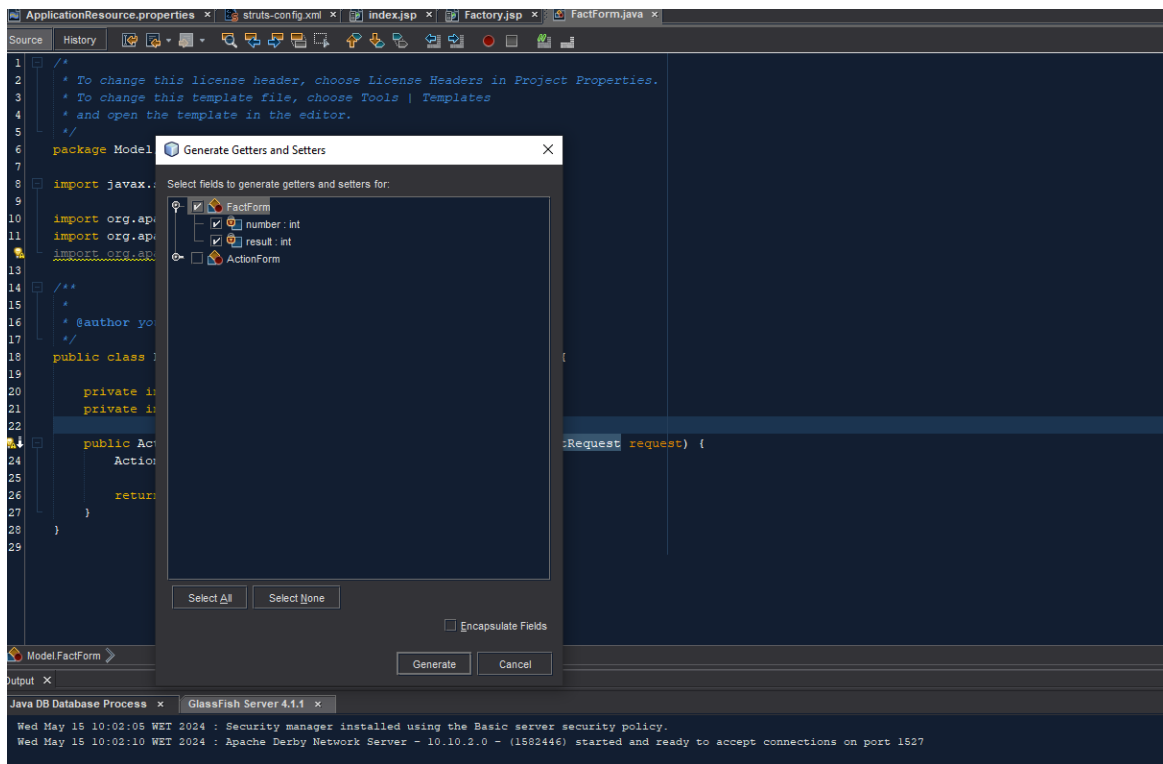
- Then delete the getters and setters by default, and add my own attributes I'll be using `number` and `result`

```

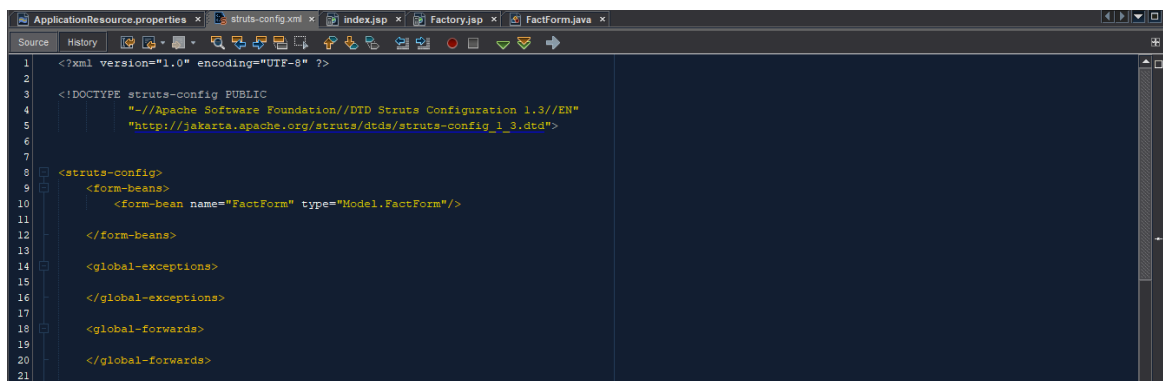
1  /*
2  * To change this license header, choose License Headers in Project Properties.
3  * To change this template file, choose Tools | Templates
4  * and open the template in the editor.
5  */
6  package Model;
7
8  import javax.servlet.http.HttpServletRequest;
9
10 import org.apache.struts.action.ActionErrors;
11 import org.apache.struts.action.ActionMapping;
12 import org.apache.struts.action.ActionMessage;
13
14 /**
15  *
16  * @author youse
17  */
18 public class FactForm extends org.apache.struts.action.ActionForm {
19
20     private int number;
21     private int result;
22
23     public ActionErrors validate(ActionMapping mapping, HttpServletRequest request) {
24         ActionErrors errors = new ActionErrors();
25
26         return errors;
27     }
28 }
29

```

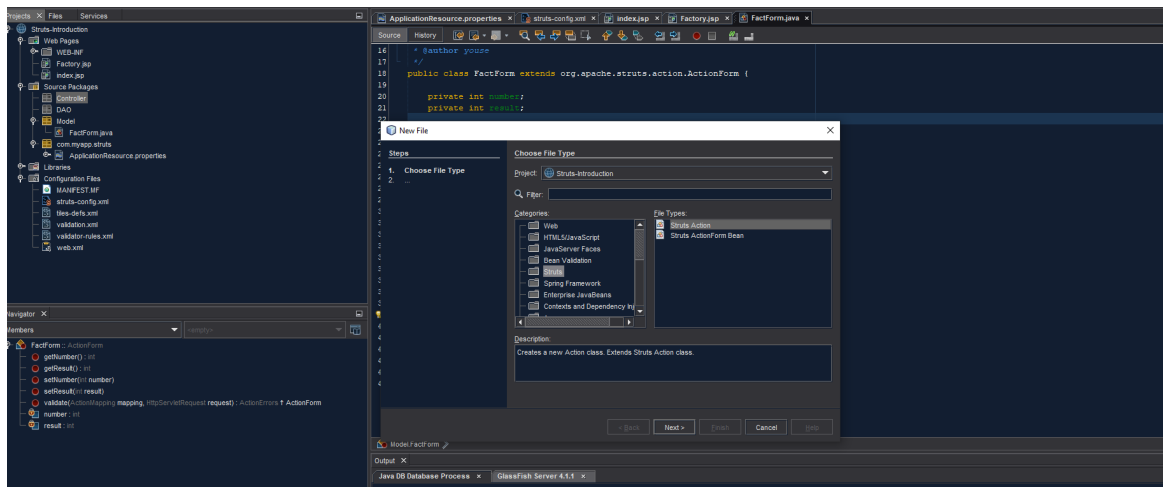
- Add getters and setters for the attributes we added



NB: If you go back to the struts-config.xml, you'll notice we have the model declared in it

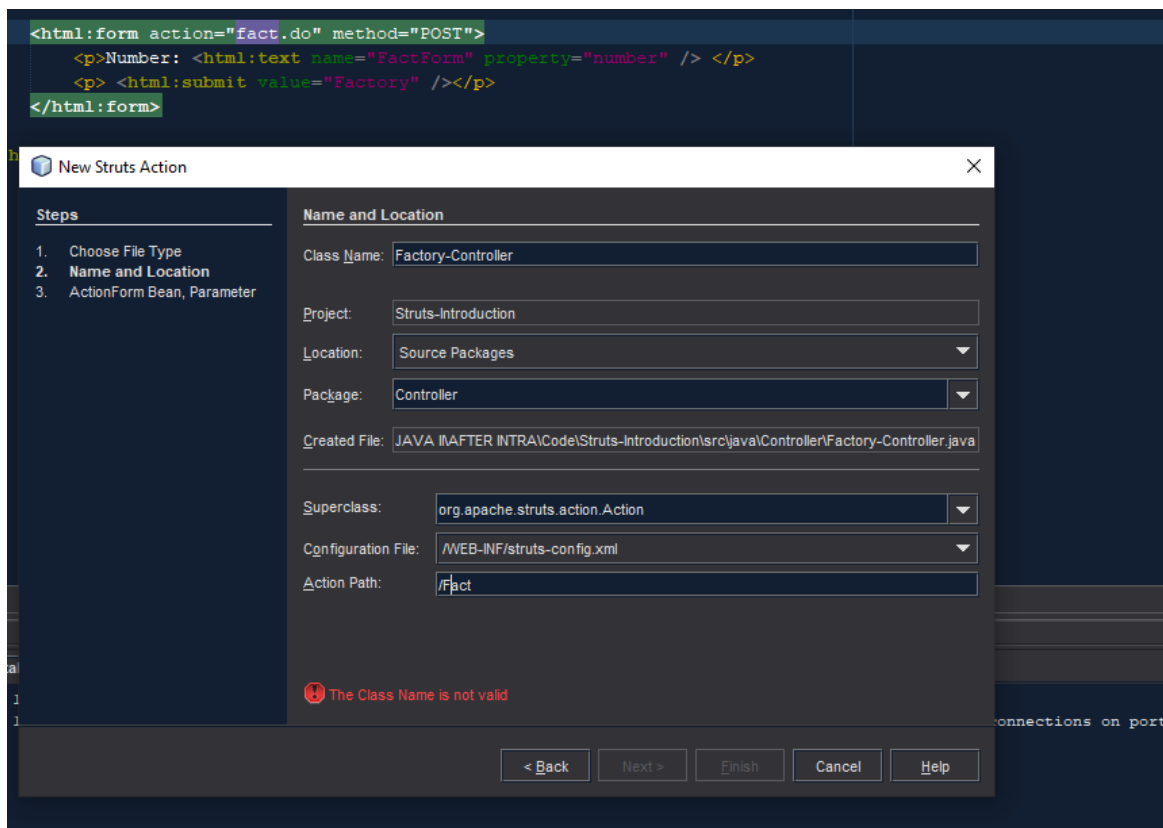


- Now we will need to create the action `fact.do` which will be created in the controller package!



Now we will be using Struts Action

- Don't forget add the path the same as the one you typed in the jsp page



- And then ActionForm will be used the one we created earlier FactForm and for the input the jsp page which is `Factory.jsp`

New Struts Action

Steps

1. Choose File Type
2. Name and Location
3. ActionForm Bean, Parameter

ActionForm Bean, Parameter

☒ Use ActionForm Bean

ActionForm Bean Name: FactForm

☒ Input Resource: /Factory.jsp Browse...

☐ Input Action: /Welcome

Scope: ☒ Session ☐ Request

Attribute:

☒ Validate ActionForm Bean

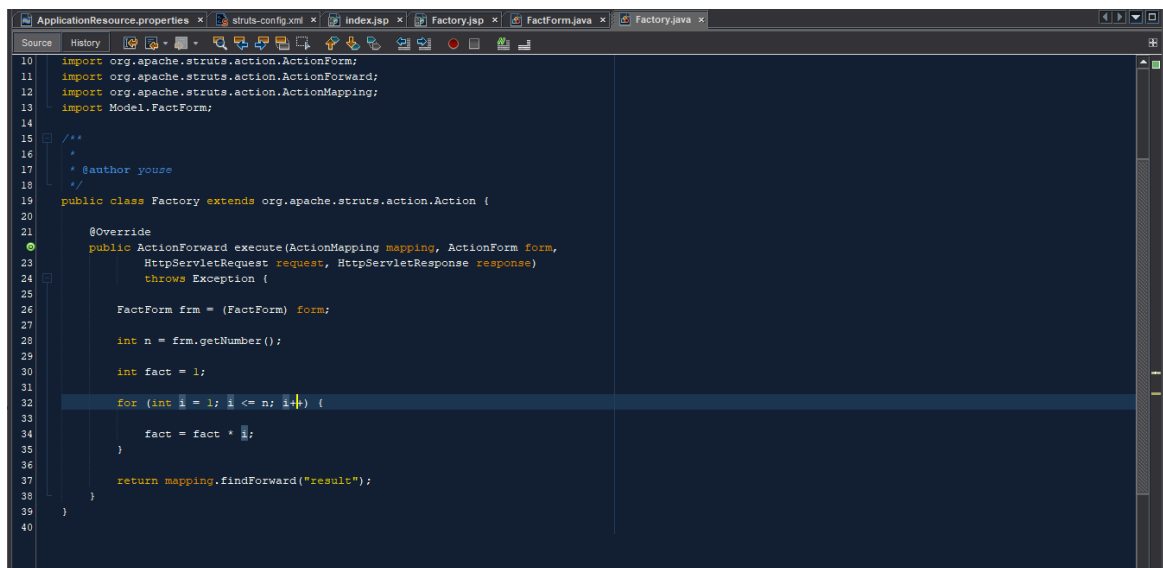
Parameter:

< Back Next > Finish Cancel Help

- Then import the FactForm in your controller

delete the unnecessary things

- Add the logic in your controller

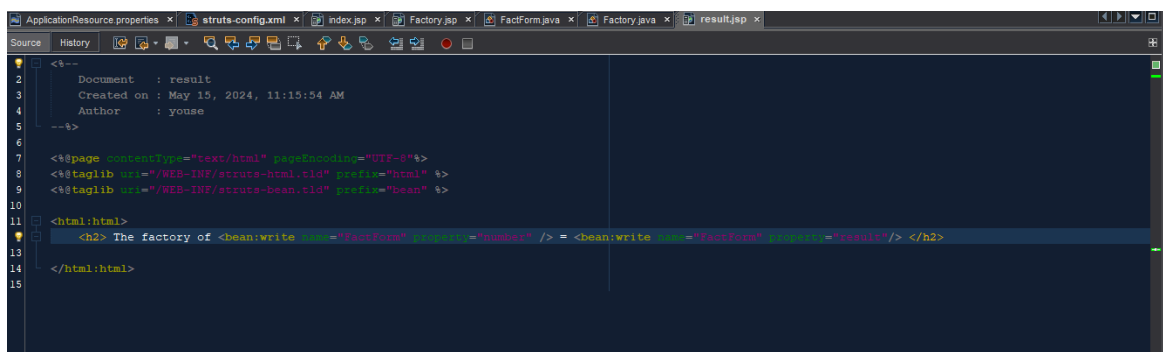


```

10 import org.apache.struts.action.ActionForm;
11 import org.apache.struts.action.ActionForward;
12 import org.apache.struts.action.ActionMapping;
13 import Model.FactForm;
14
15 /**
16  *
17  * @author youse
18  */
19 public class Factory extends org.apache.struts.action.Action {
20
21     @Override
22     public ActionForward execute(ActionMapping mapping, ActionForm form,
23         HttpServletRequest request, HttpServletResponse response)
24         throws Exception {
25
26         FactForm frm = (FactForm) form;
27
28         int n = frm.getNumber();
29
30         int fact = 1;
31
32         for (int i = 1; i <= n; i++) {
33
34             fact = fact * i;
35
36         }
37
38         return mapping.findForward("result");
39     }
40 }

```

- Go create the `result.jsp` page !

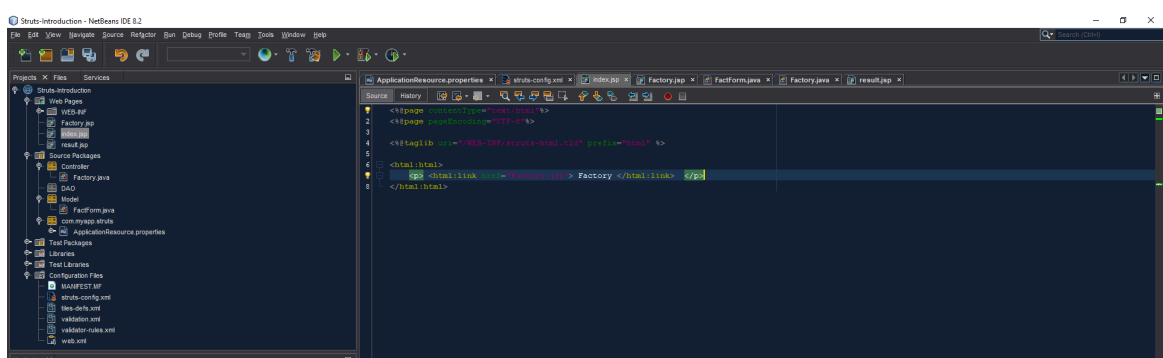


```

1 <!--
2   Document   : result
3   Created on : May 15, 2024, 11:15:54 AM
4   Author    : youse
5 -->
6
7
8 <%@page contentType="text/html" pageEncoding="UTF-8"%>
9 <%@taglib uri="/WEB-INF/struts-html.tld" prefix="html"%>
10 <%@taglib uri="/WEB-INF/struts-bean.tld" prefix="bean"%>
11
12 <html:html>
13     <h2> The factory of <bean:write uri="/WEB-INF/struts-bean.tld" prefix="bean" name="factForm" property="number" /> = <bean:write uri="/WEB-INF/struts-bean.tld" prefix="bean" name="factForm" property="result" /> </h2>
14
15 </html:html>

```

- Fill the index page to link the index with the logic of the



```

1 <!--
2   Document   : result
3   Created on : May 15, 2024, 11:15:54 AM
4   Author    : youse
5 -->
6
7
8 <%@page contentType="text/html" pageEncoding="UTF-8"%>
9 <%@taglib uri="/WEB-INF/struts-html.tld" prefix="html"%>
10 <%@taglib uri="/WEB-INF/struts-bean.tld" prefix="bean"%>
11
12 <html:html>
13     <h2> The factory of <bean:write uri="/WEB-INF/struts-bean.tld" prefix="bean" name="factForm" property="number" /> = <bean:write uri="/WEB-INF/struts-bean.tld" prefix="bean" name="factForm" property="result" /> </h2>
14
15 </html:html>

```

- Go back to `struts-config.xml` and add the global-forward for the result page

```

<struts-config>
  <form-beans>
    <form-bean name="FactForm" type="Model.FactForm"/>
  </form-beans>

  <global-exceptions>
  </global-exceptions>

  <global-forwards>
    <forward name="result" path="/result.jsp"/>
  </global-forwards>

  <action-mappings>
    <action input="/Factory.jsp" name="FactForm" path="/fact" scope="session" type="Controller.Factory"/>
    <action path="/Welcome" forward="/welcomeStruts.jsp"/>
  </action-mappings>

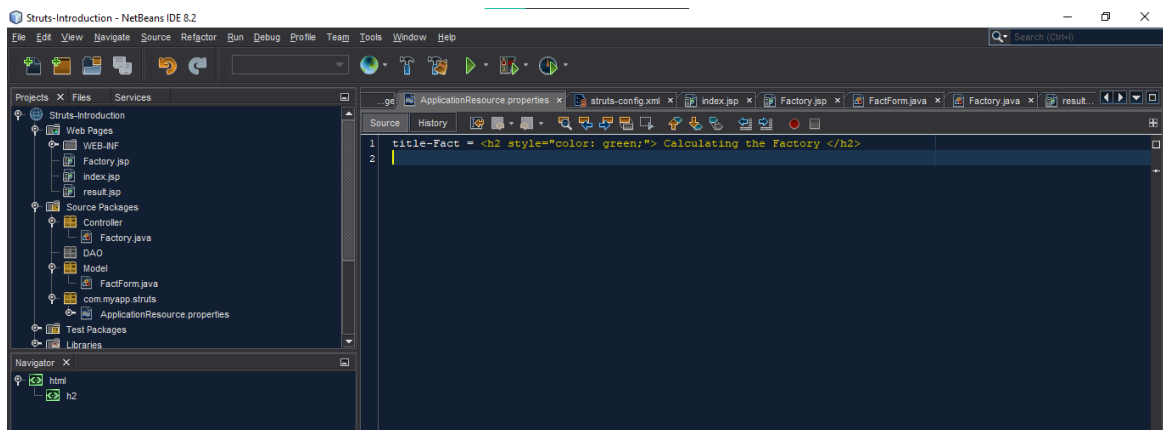
  <controller processorClass="org.apache.struts.tiles.TilesRequestProcessor"/>

  <message-resources parameter="com.myapp.struts.ApplicationResource"/>

```

- Finally you can add a message with the style from

`ApplicationResource.properties`



we added the title-fact with a custom style (css)

- Then the last thing just call title-fact in `result.jsp` page

```

Document : result
Created on : May 15, 2024, 11:15:54 AM
Author : youse

<?xml:namespace prefix="html" href="http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd" />
<?taglib uri="/WEB-INF/struts-html.tld" prefix="html" />
<?taglib uri="/WEB-INF/struts-bean.tld" prefix="bean" />

<html:html>
  <bean:message key="title-Fact" />
  <h2> The factory of
    <bean:write name="FactForm" property="number" />
    =
    <bean:write name="FactForm" property="result" />
  </h2>
</html:html>

```

use `bean:message` to retrieve localized messages from resource bundles