z/TPF V1.1

TPF Users Group - 2011

Experiences building WebSphere Applications that connect to zTPF using Web Services

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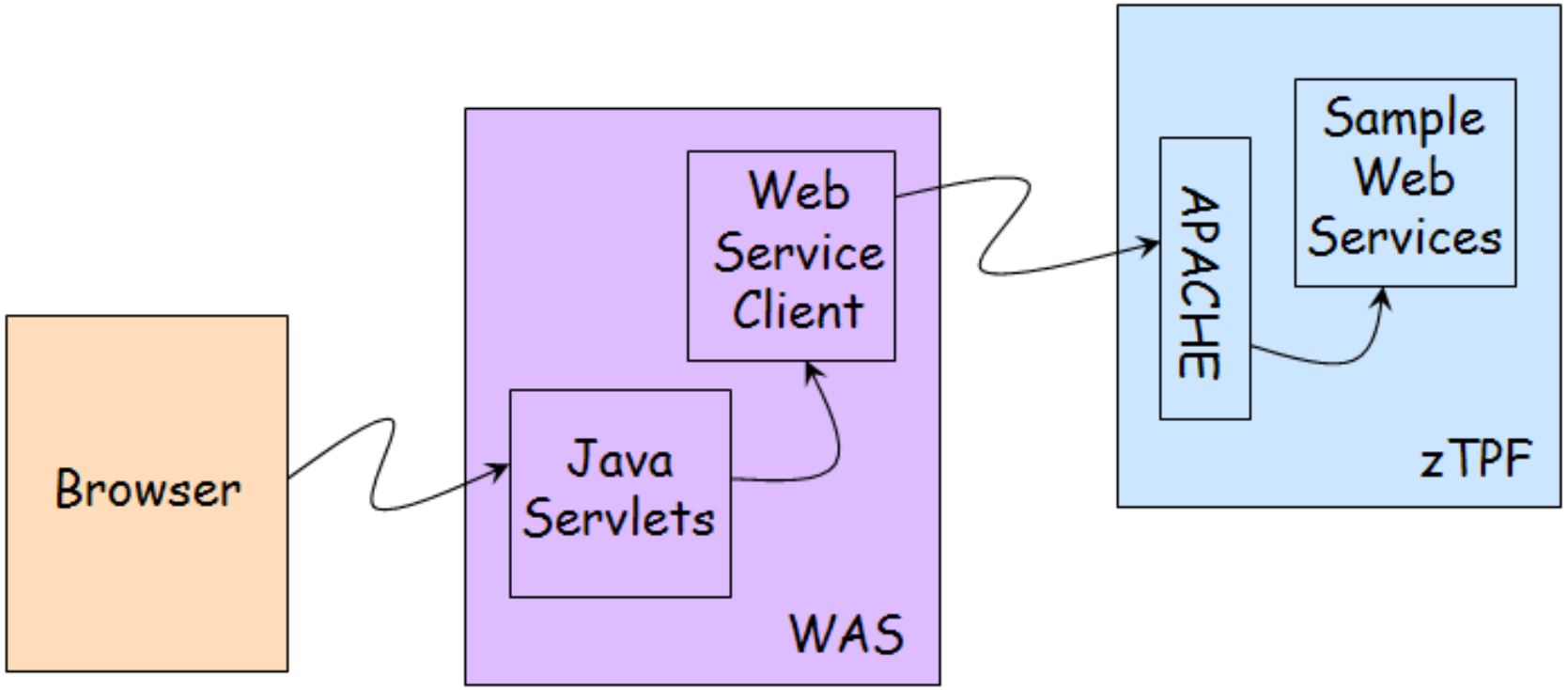
Venue: Education

AIM Enterprise Platform Software
IBM z/Transaction Processing Facility Enterprise Edition 1.1.0

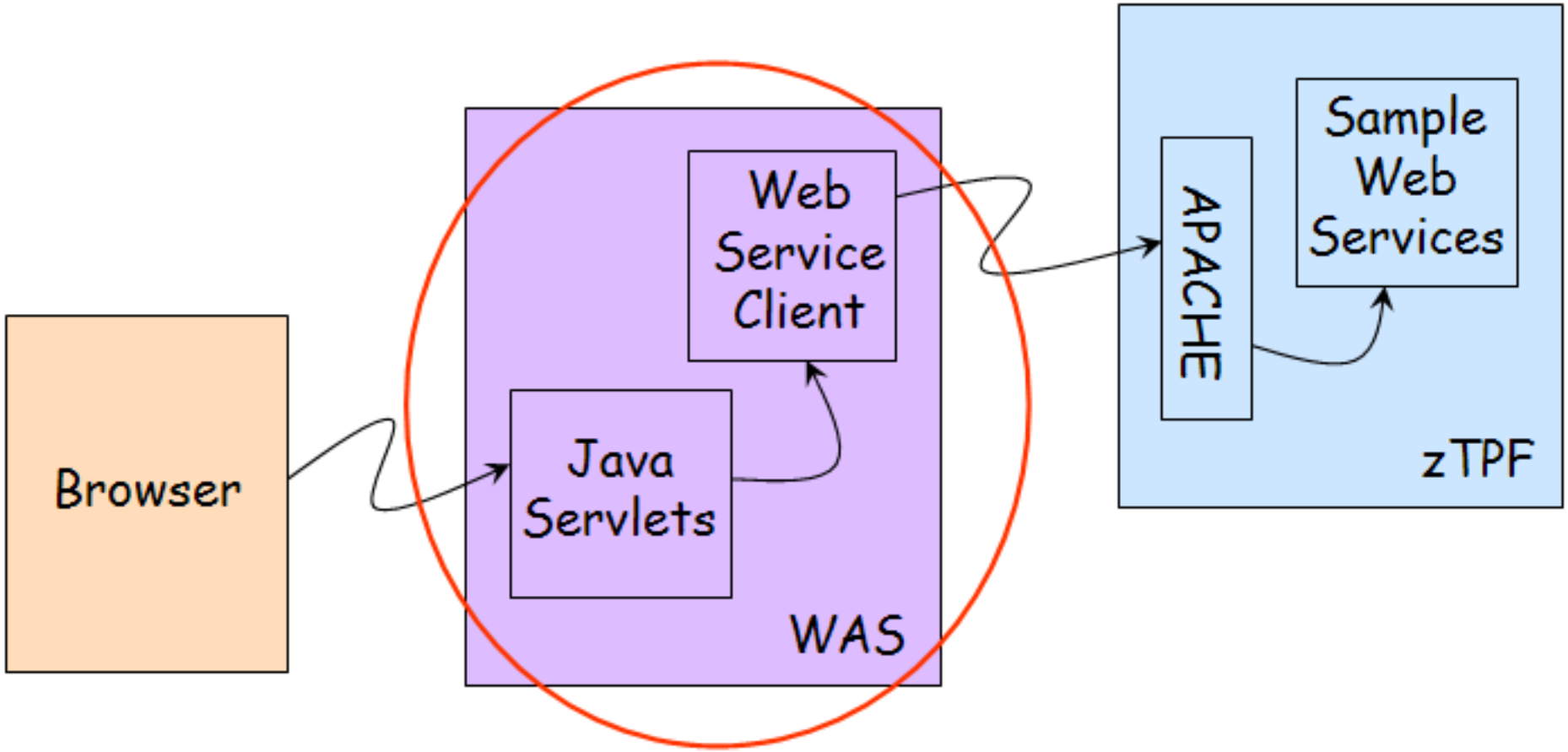
Agenda

- **Demo using Rational Software Architect (RSA)**
- **Lessons learned when building client application**
- **Best practices when designing messages**
- **References for more information**

Demo “Application”



Demo “Application”

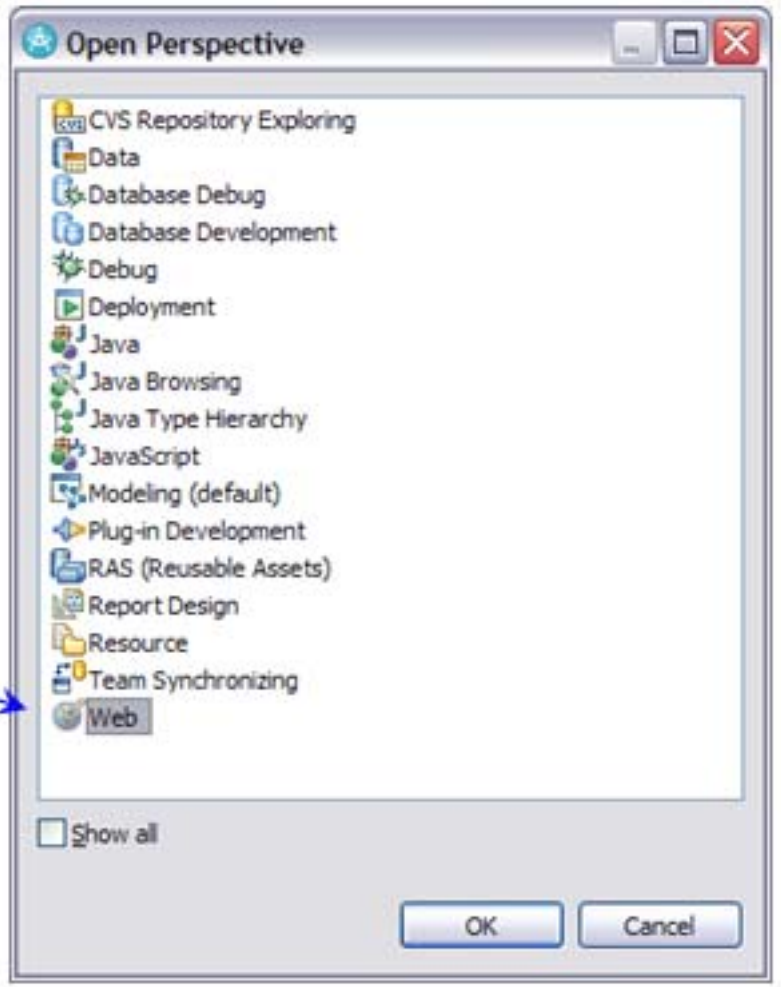


< Run the sample application >

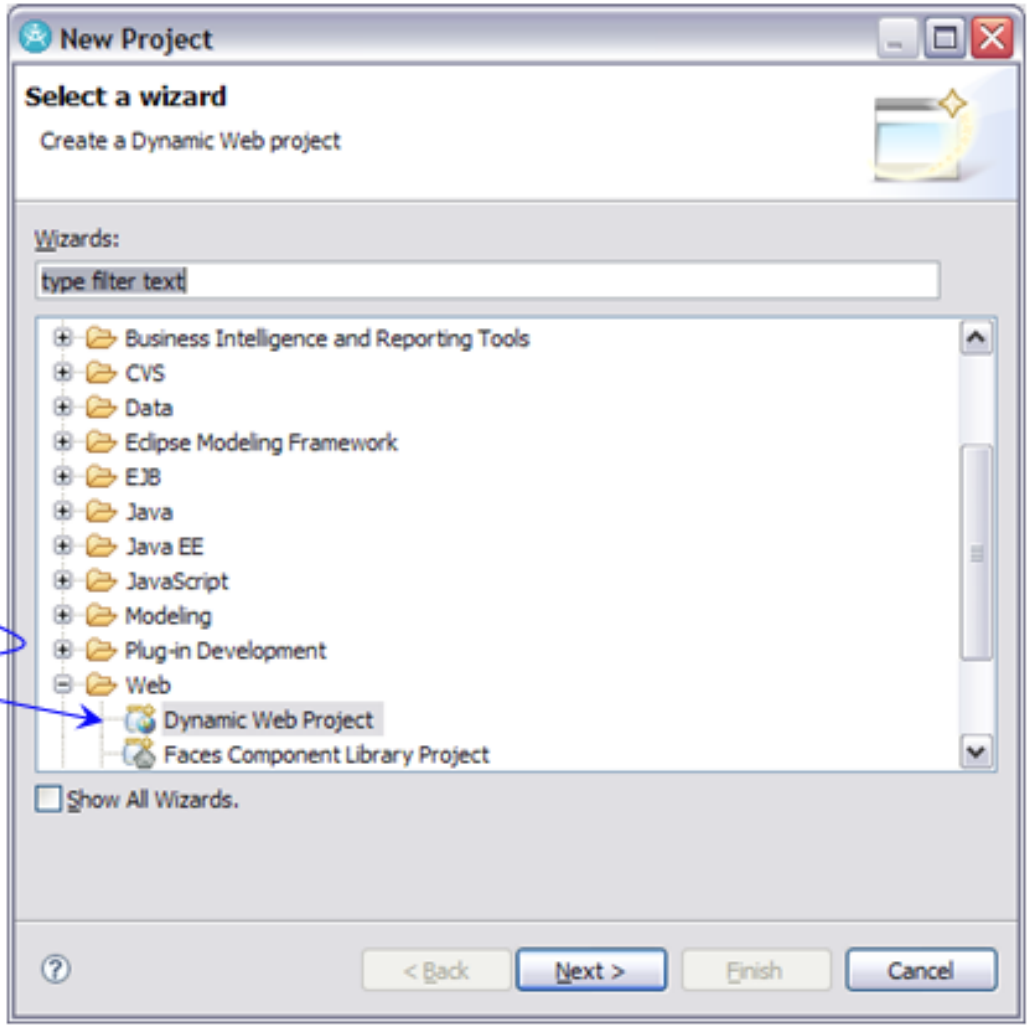
<Some RSA setup>

Project setup in Rational Software Architect (RSA) for WebSphere

First set web perspective …

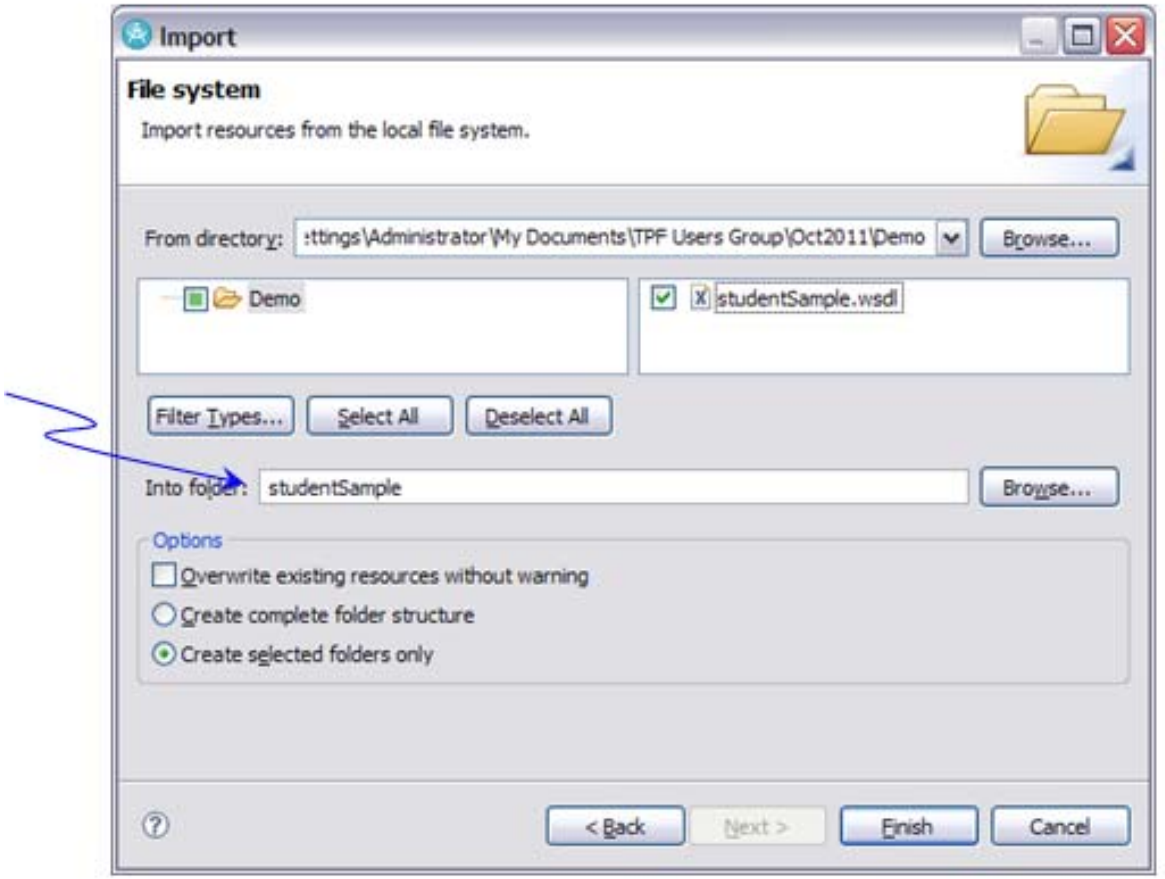


Create a web project

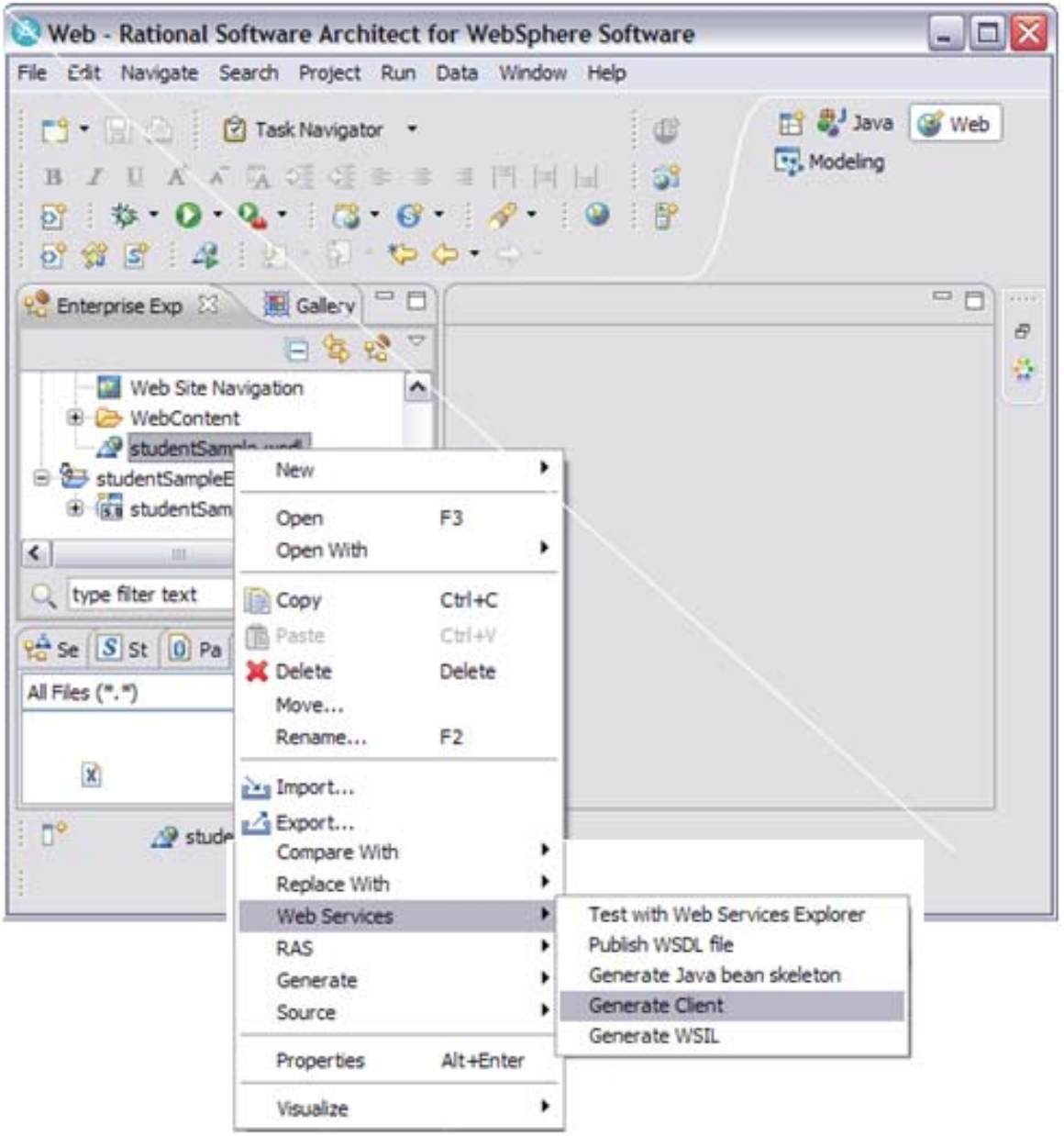


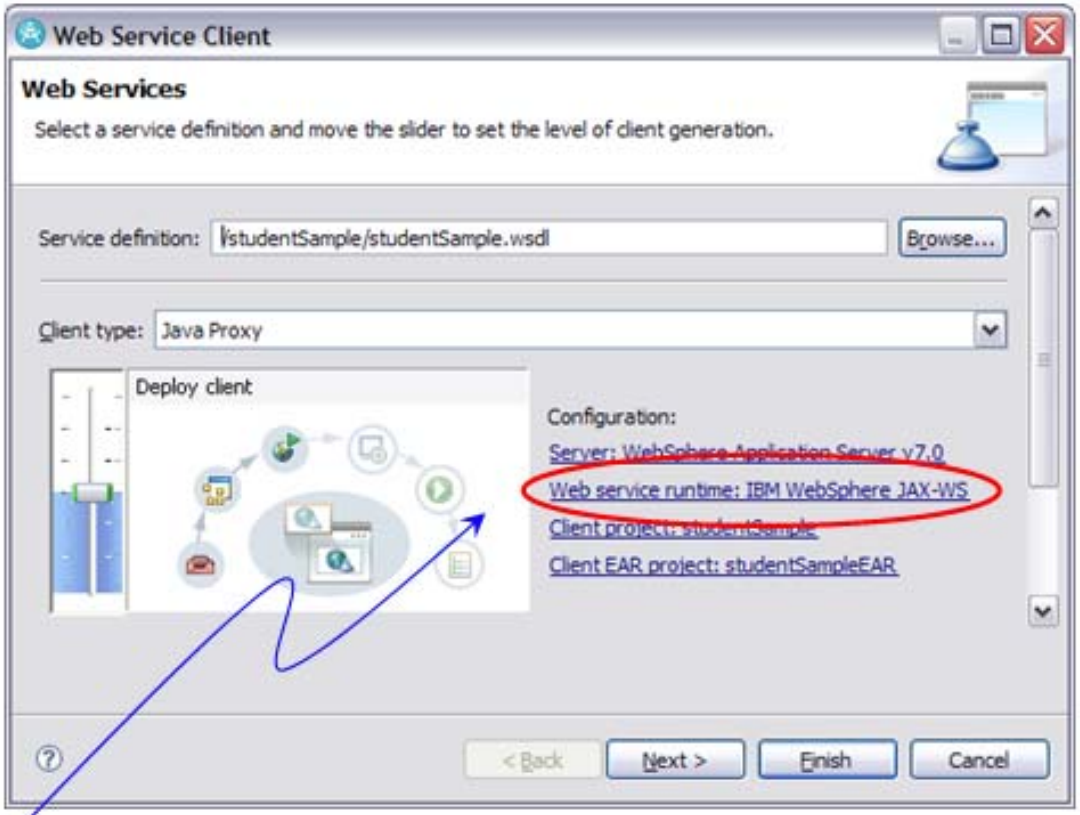
Import WSDL files for services being called in the application

Name of web project created



Generate client stubs

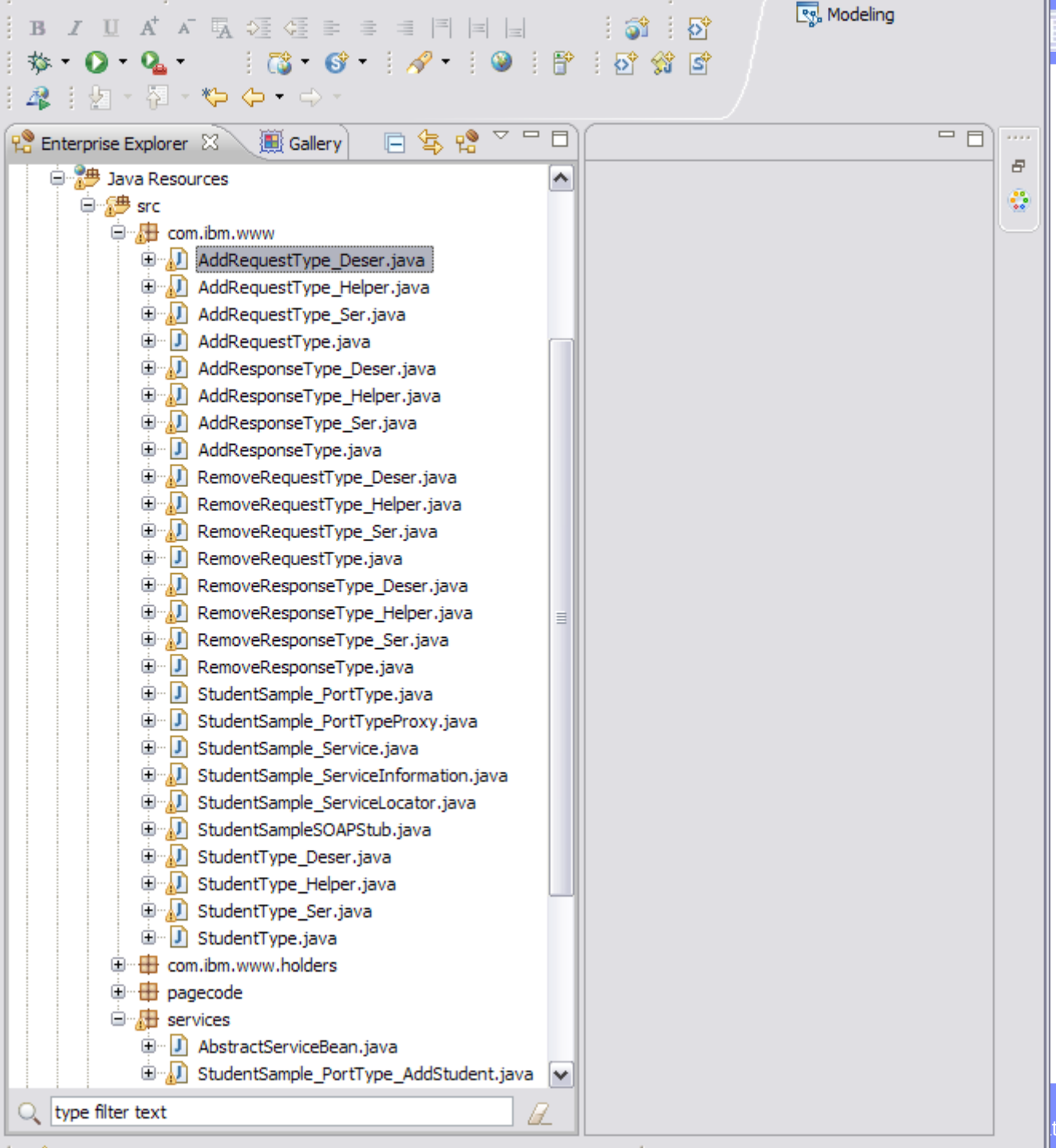




Click on link to set the correct web service runtime:

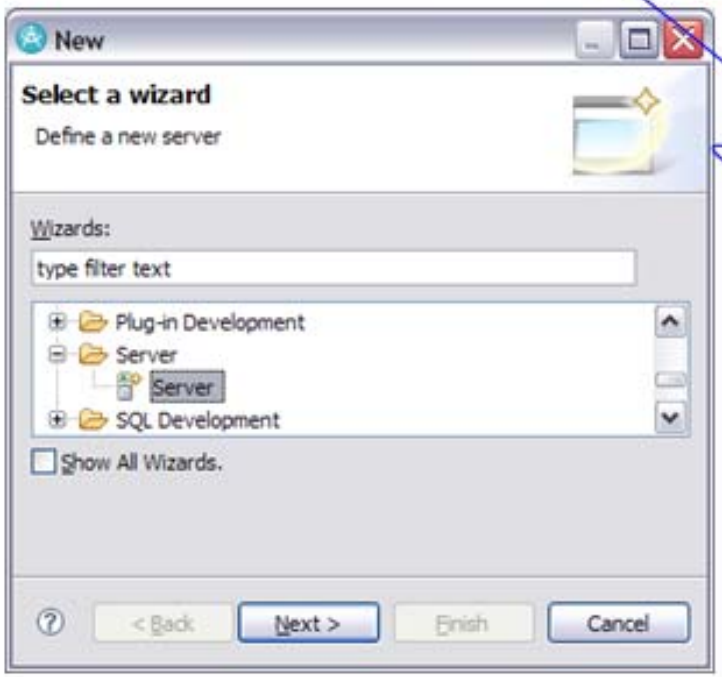
JAX-WS or JAX-RPC

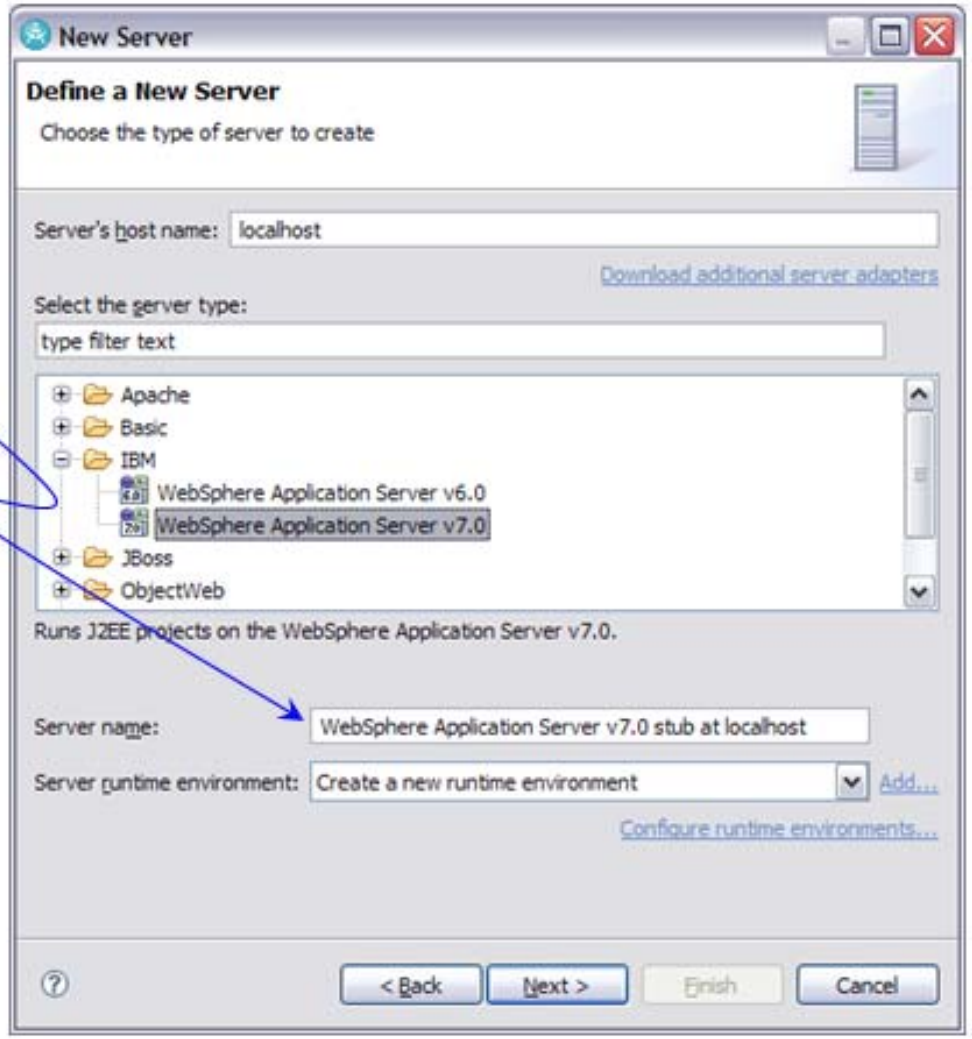
List of generated classes for all methods in WSDL



Create a server to run the code

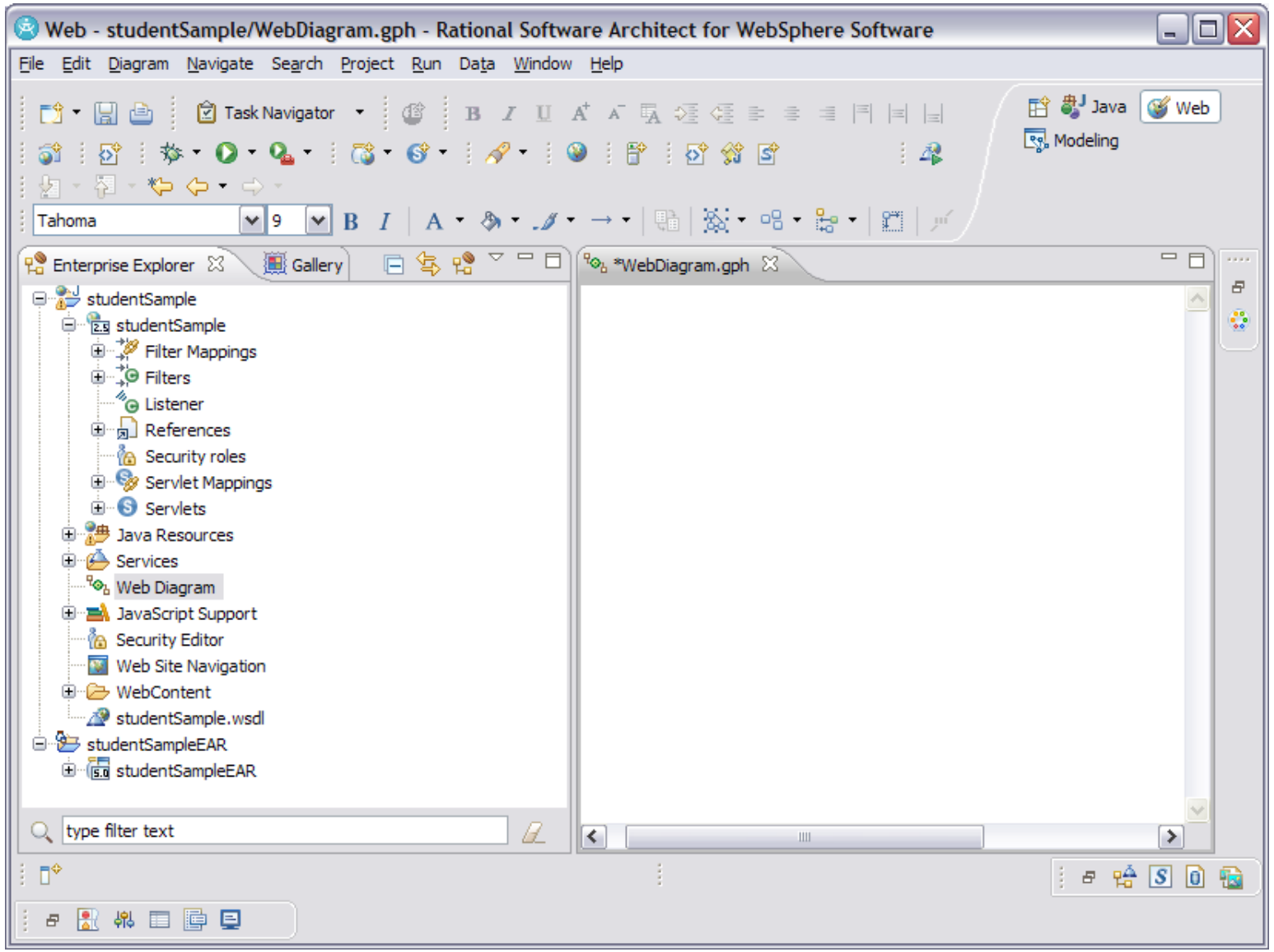
Can create a local server or define connection to a shared server.



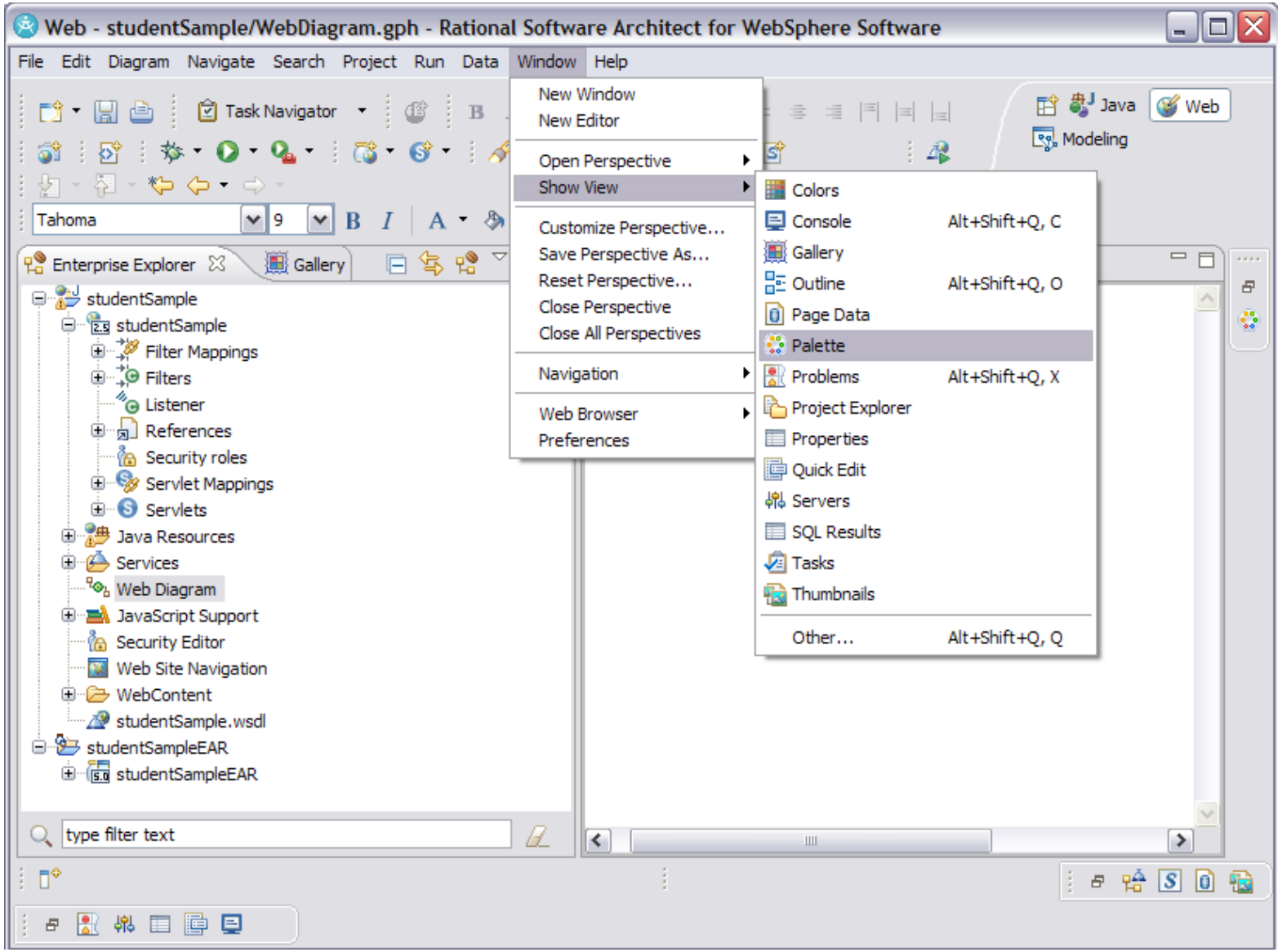


<Update sample application with remove service call>

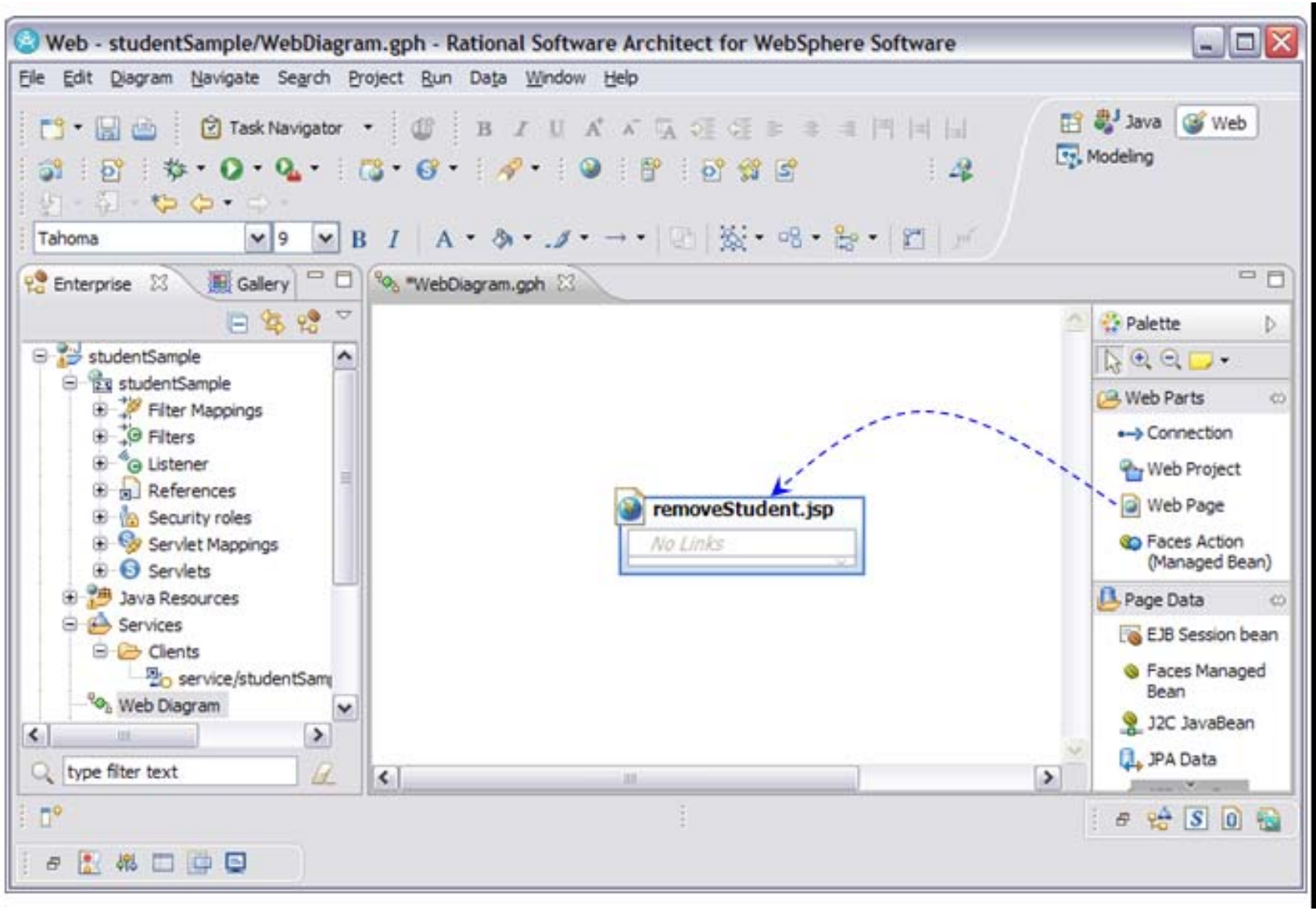
Open Web Diagram Editor



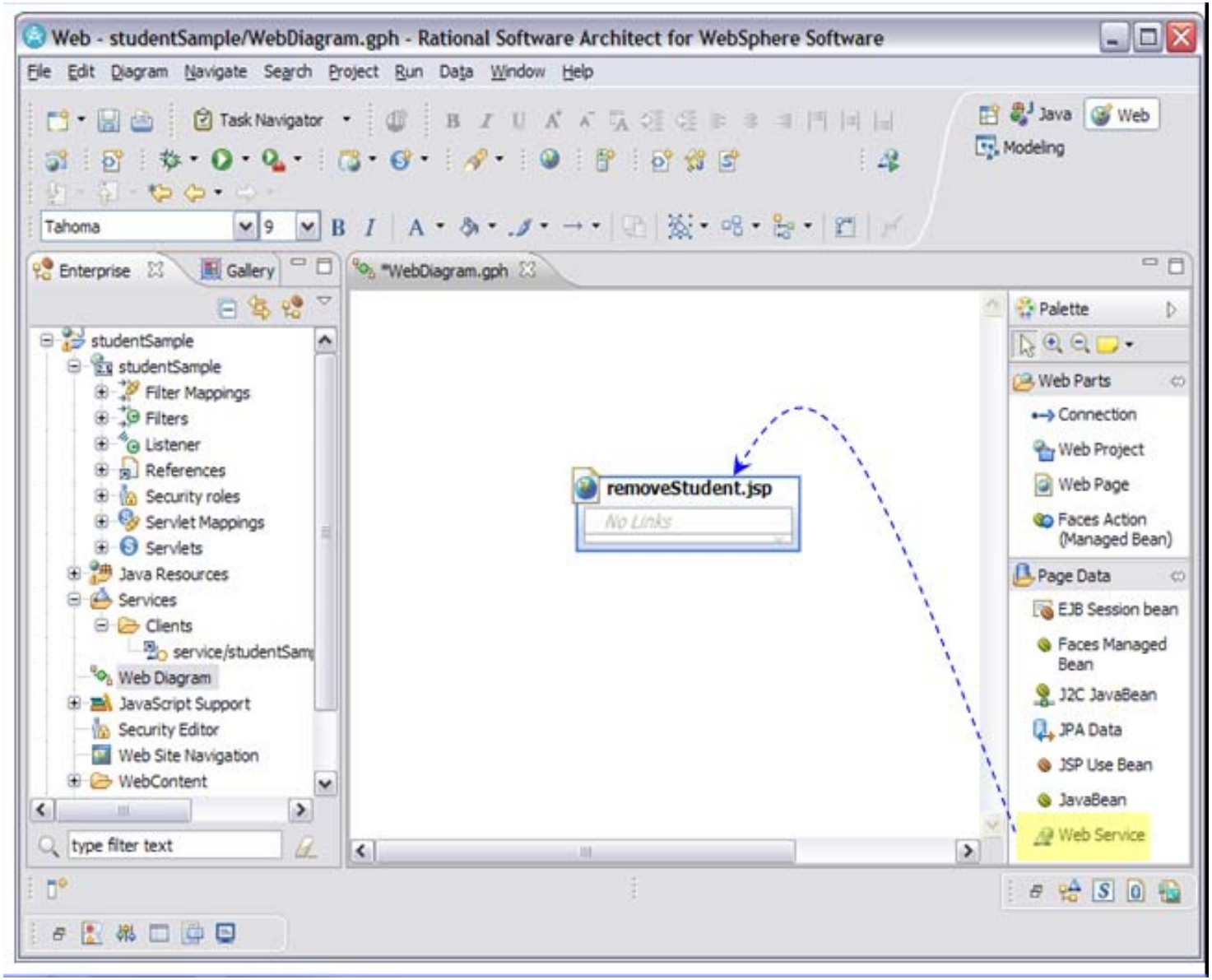
Open the Palette of web tools

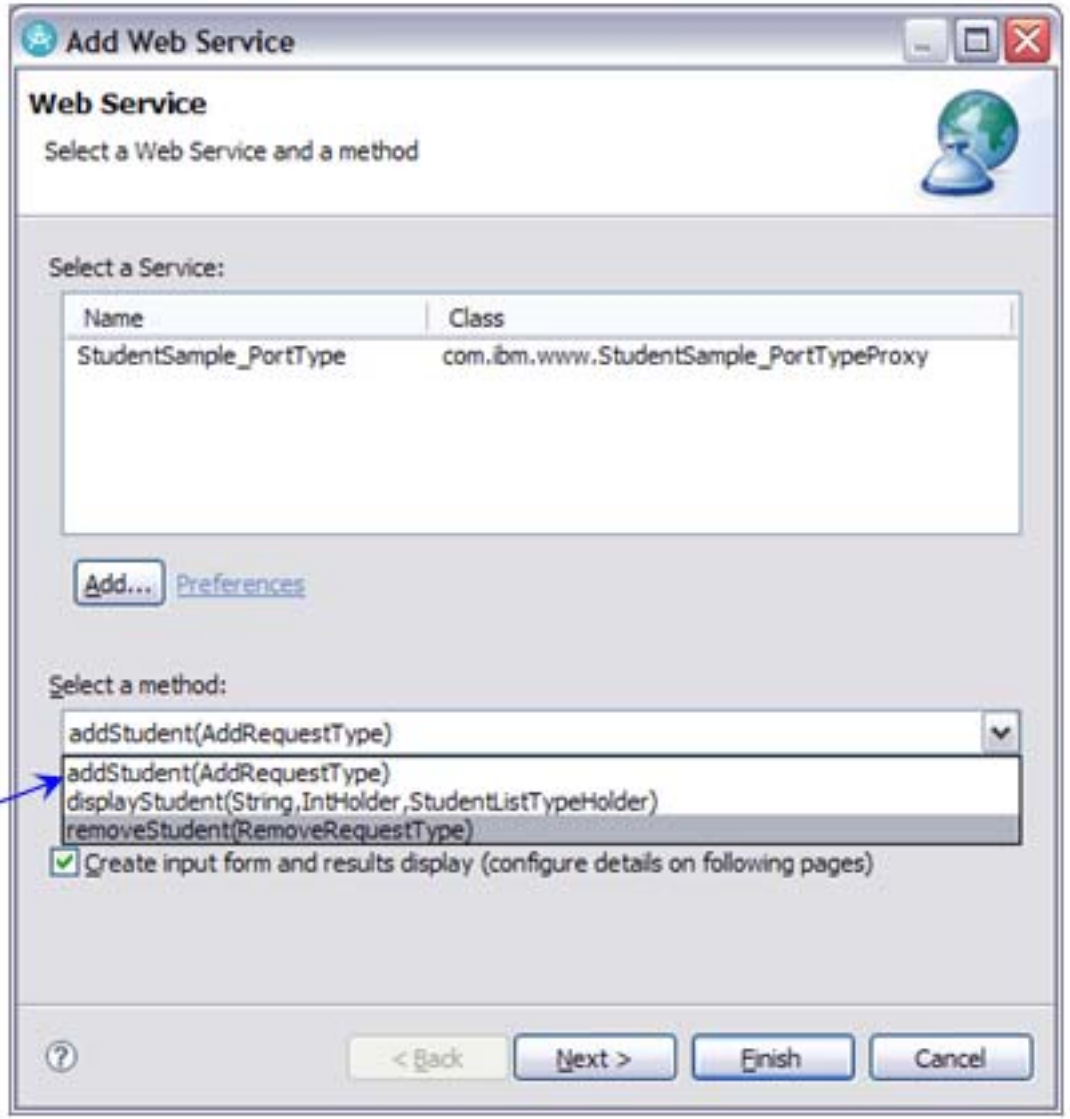


Drag and drop a new web page into the web diagram area



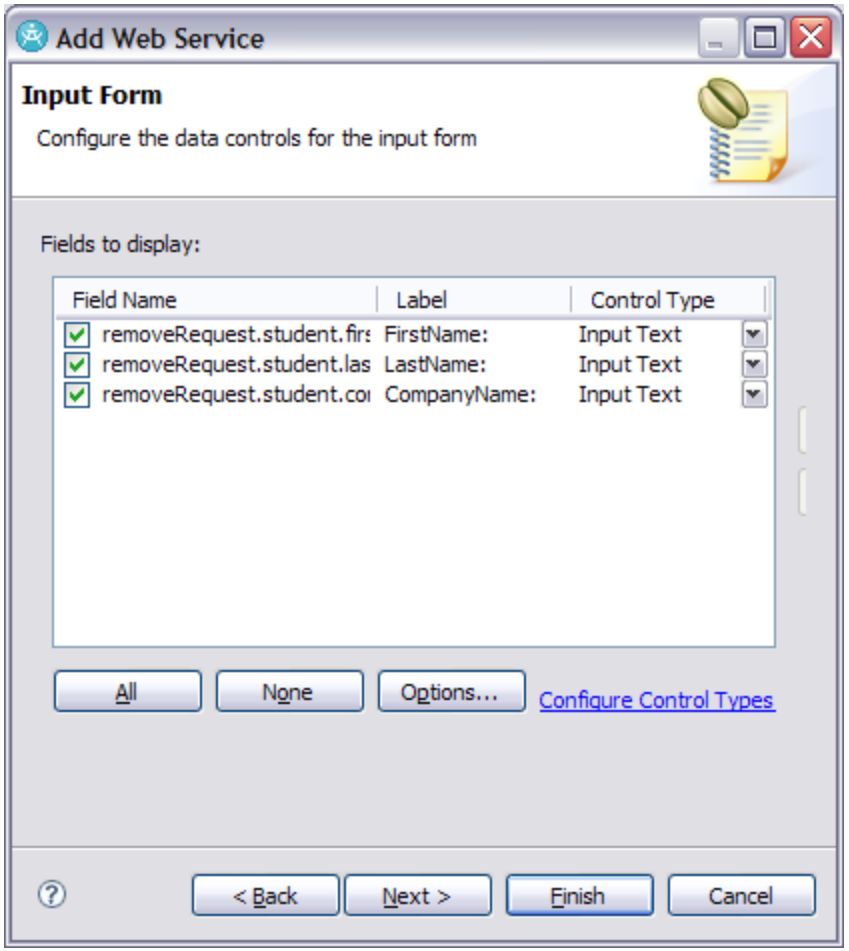
Drag and drop a web service onto the new page

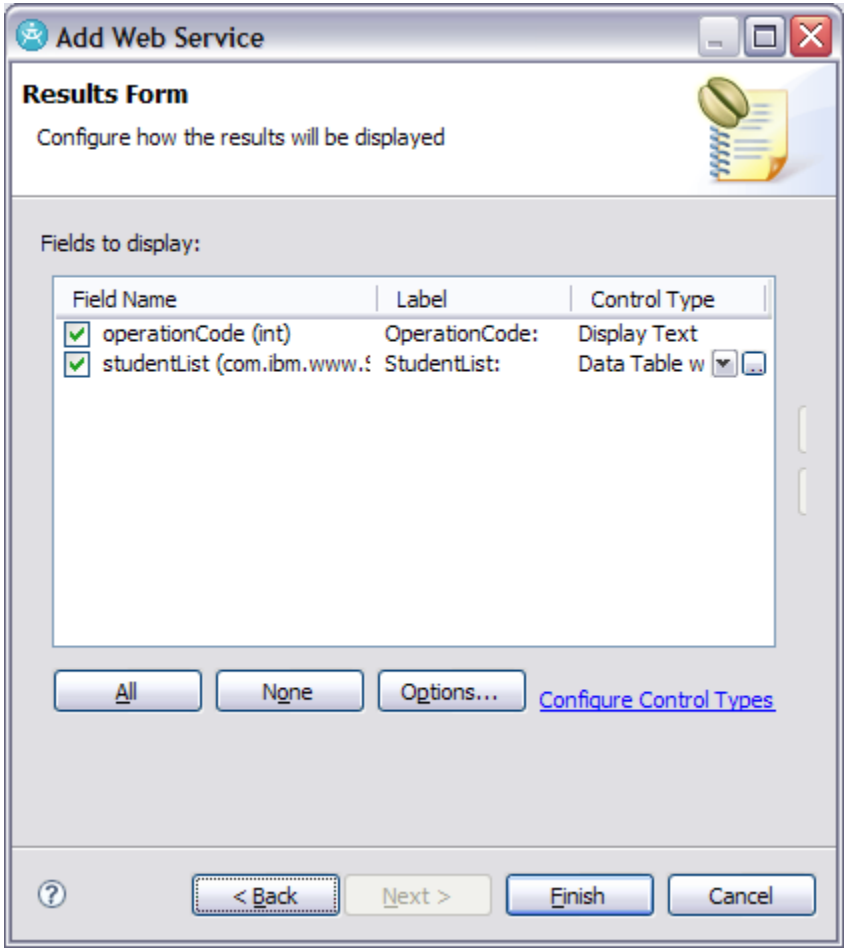


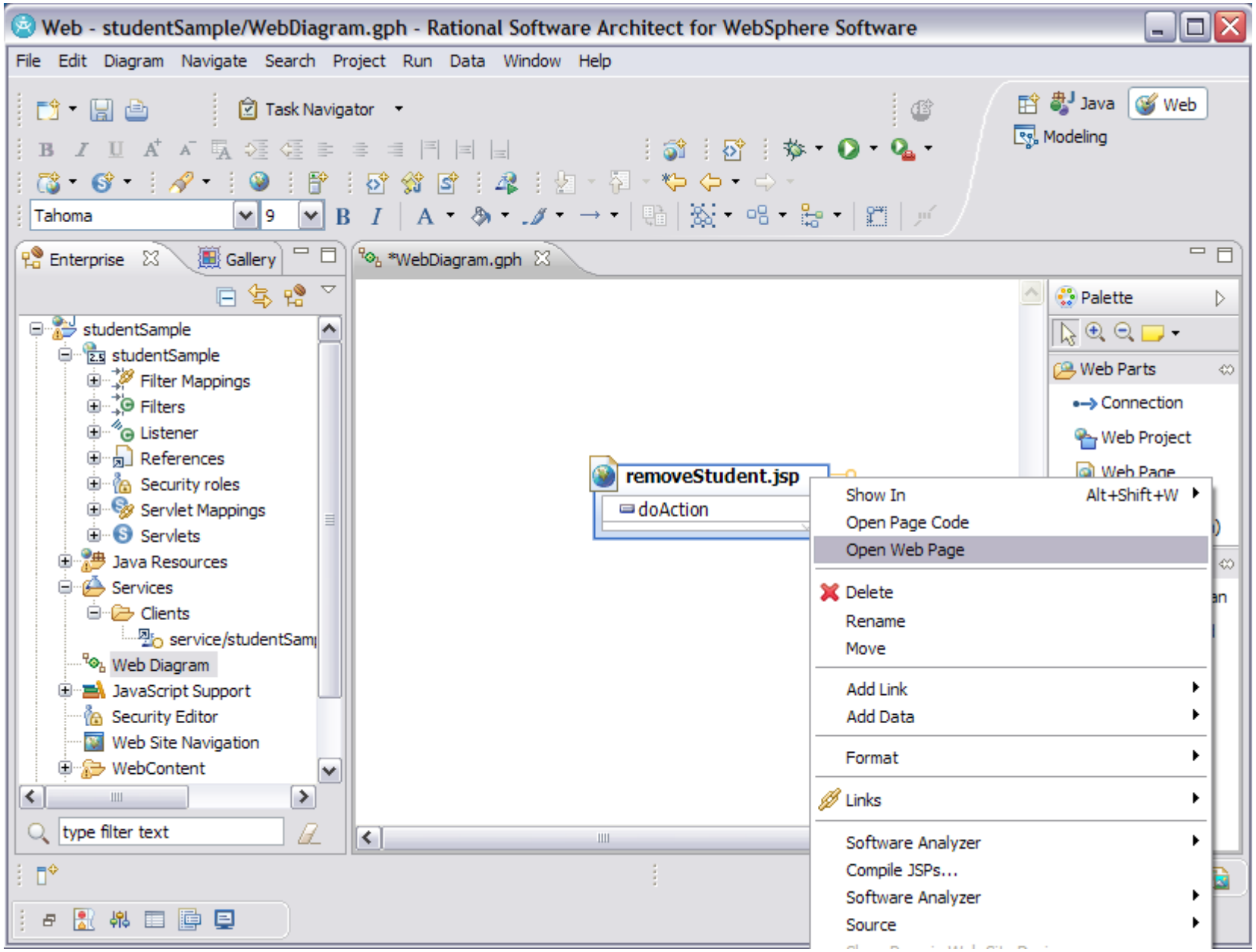


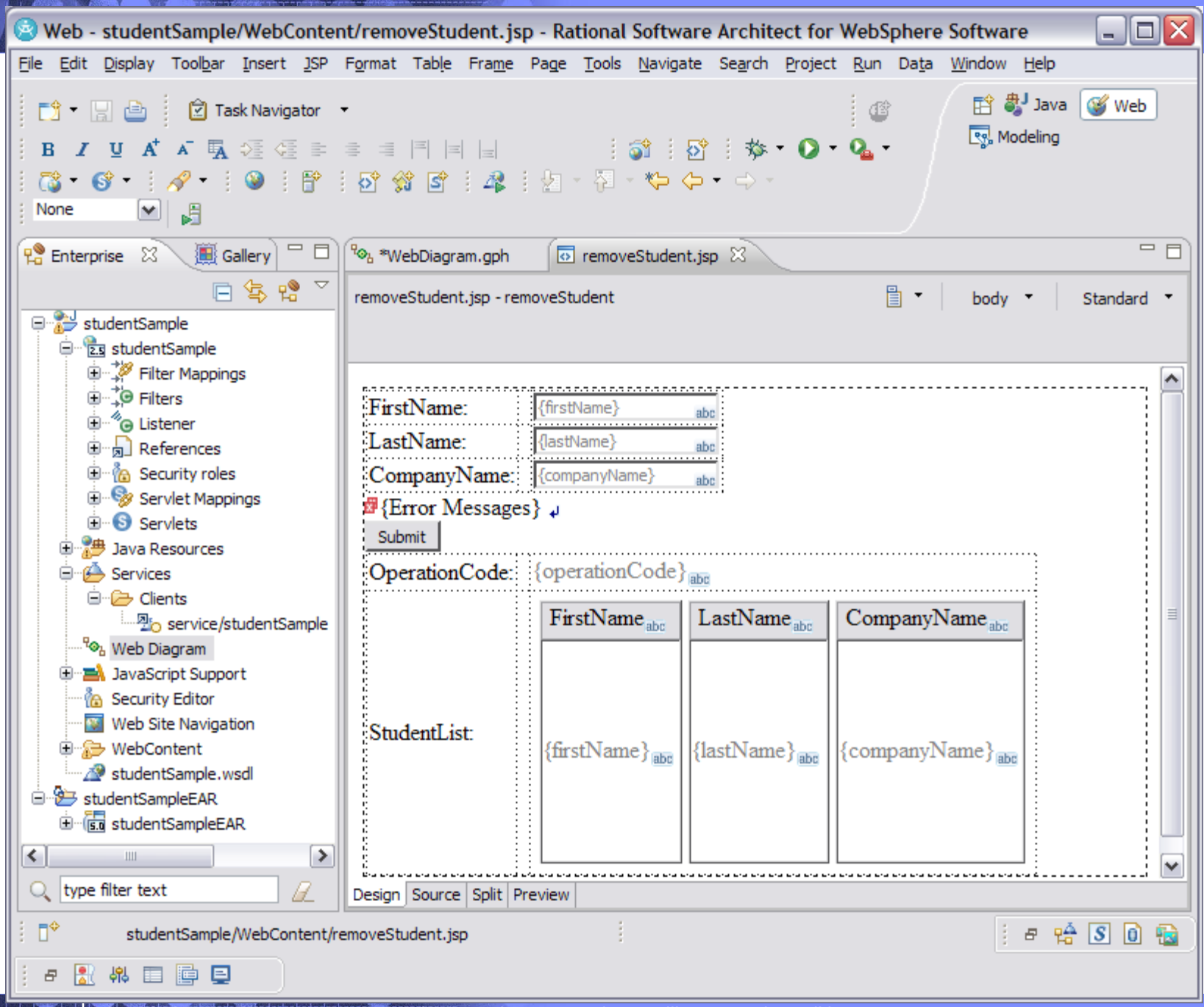
3 methods in this service - select removeStudent

Select fields to be displayed on the new page









Need to make a couple of updates to generated code…

…src/services/StudentSample_PortType_RemoveStudent.java

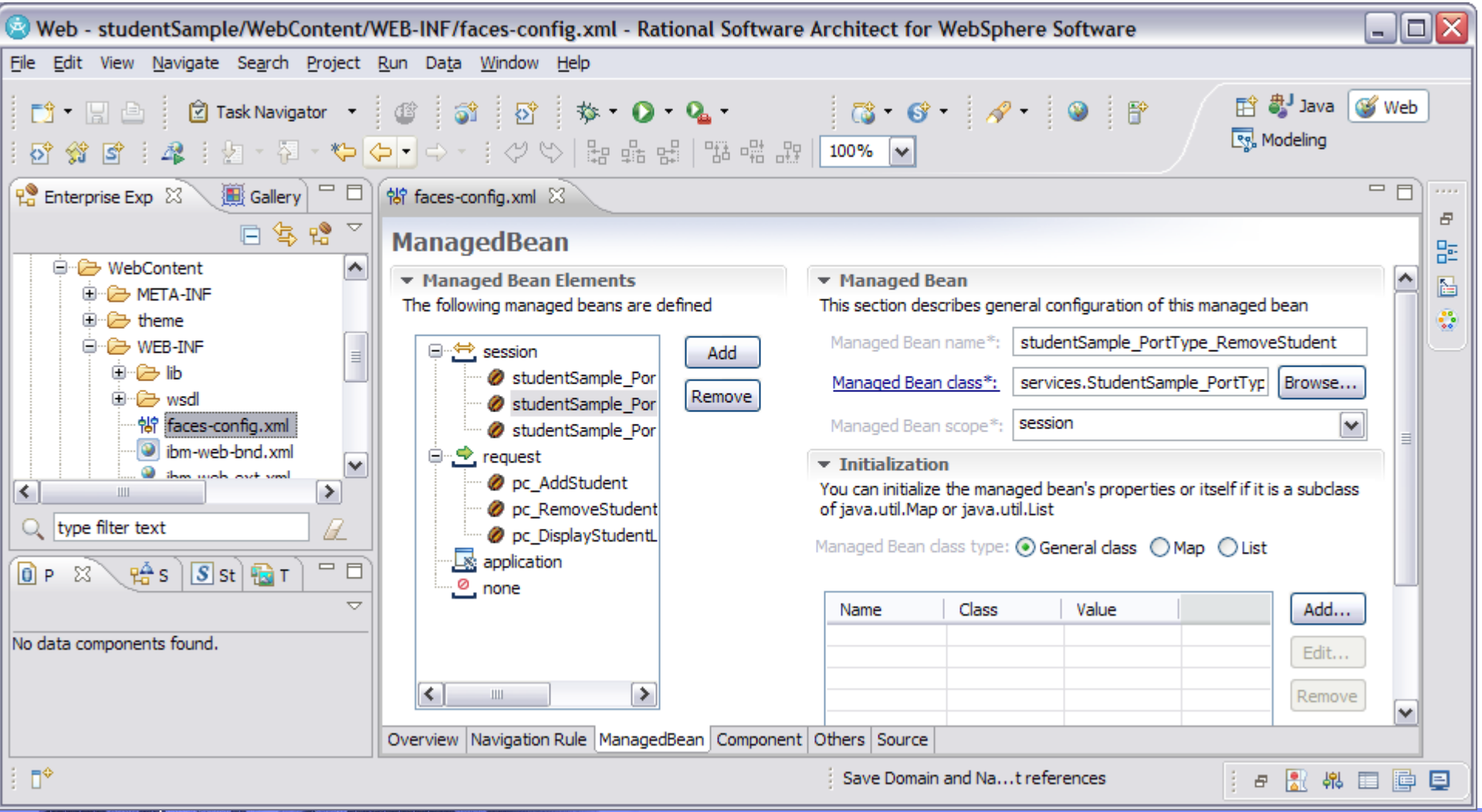
- Update request to create complex object

```
public AddRequestType getAddRequest() {
if (removeRequest == null) {
   removeRequest = new RemoveRequestType();
   //TODO This object has properties which may not have been initialized.  Add
  initialization code here if needed.
   removeRequest.setStudent(new StudentType());
}
return addRequest;
}
```

- Add service endpoint information

```
public String doAction() {
getParamBean();
getService().setEndpoint("http://9.57.13.195/studentSample");
if (paramBean != null) {
   try {
     resultBean = getService().removeStudent(
     paramBean.getRemoveRequest());
   } catch (Exception e) {
     e.printStackTrace();
   }
}
return "";
}
```

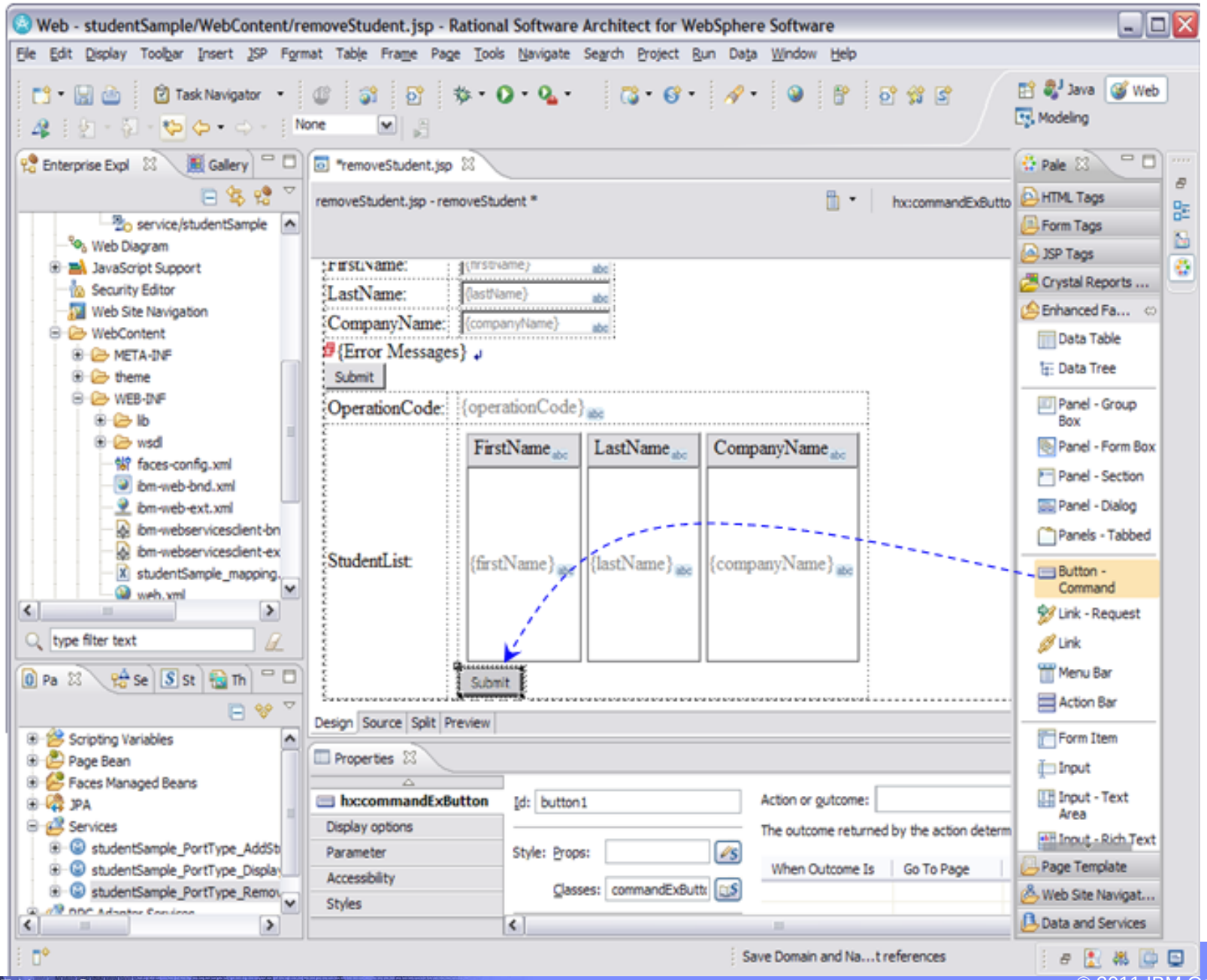
Update managed bean to be session scope – allows for data and control to be passed from one page to another



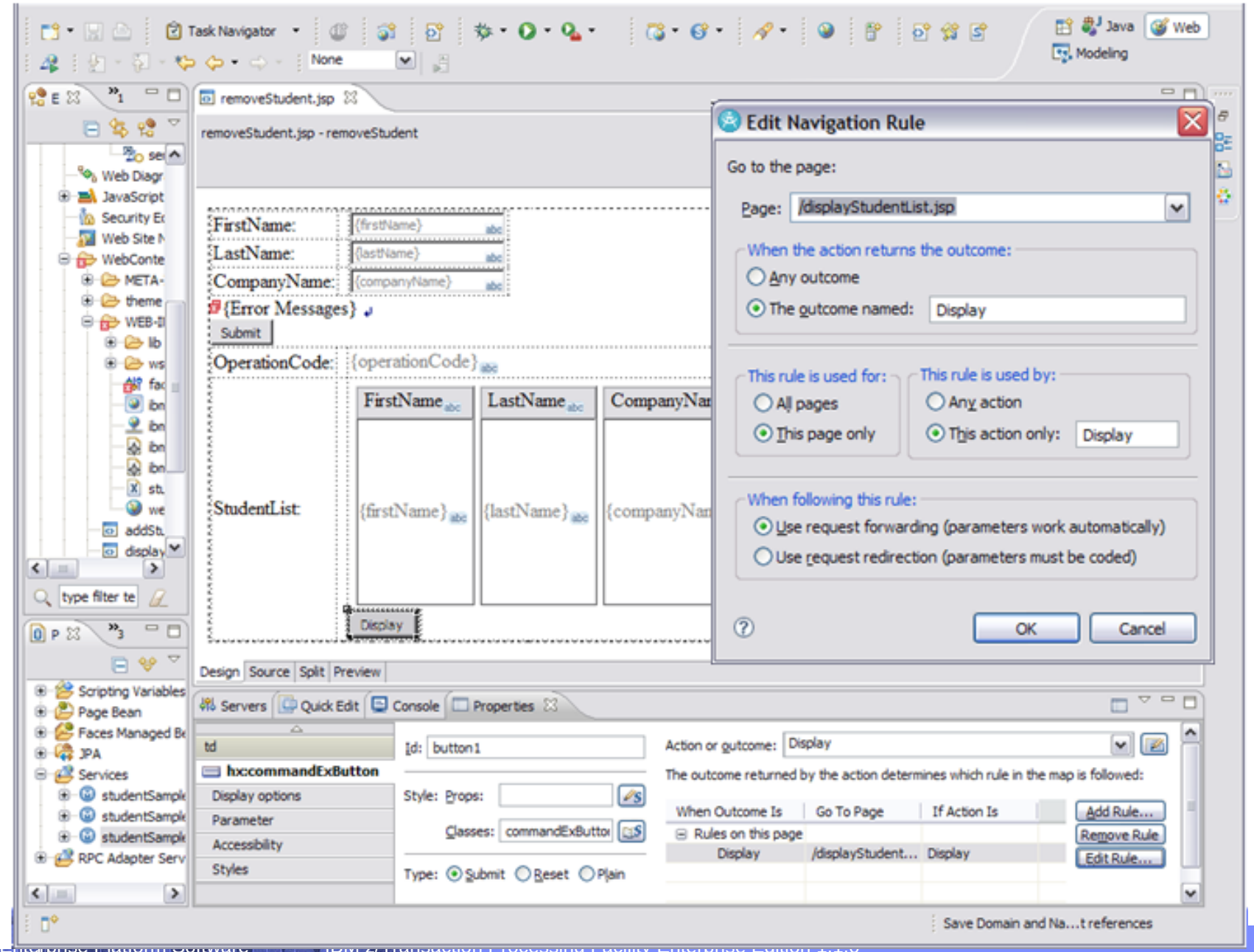
<Run application to show removeStudent>

<Create action button on remove page to call display page>

From design view of displayStudentList.jsp – drag and drop button



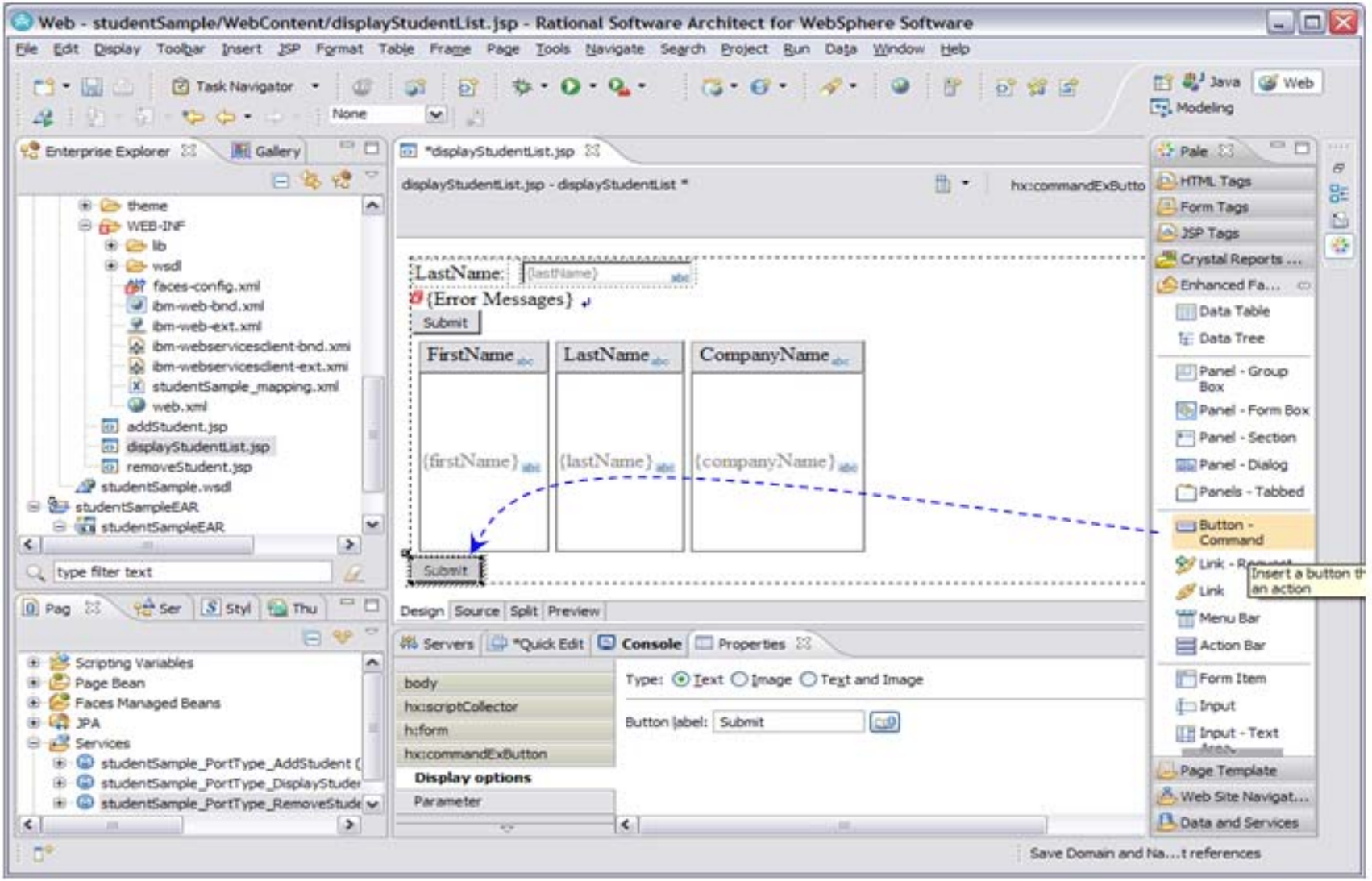
Edit to update label and define an action rule



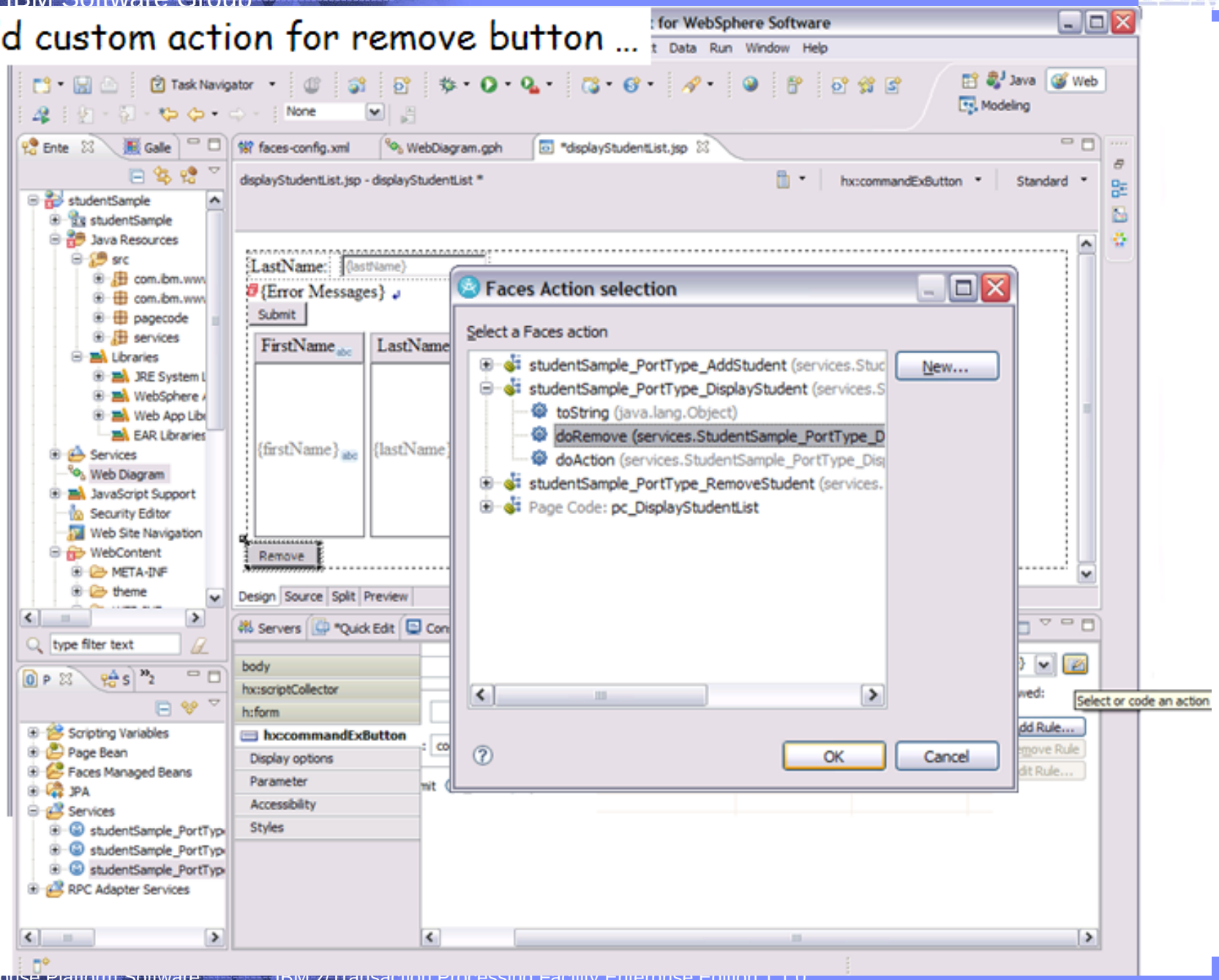
<Run application to show display button from remove page>

< Using data from display page as input to remove page >

Update displayStudentList.jsp to add remove button …



Add custom action for remove button ...



Some Lessons Learned

- **Very easy to use for simple interfaces**
  - Do not need in-depth TPF skills
  - For more complicated types will need more Java and web services skills
- **Generated message guaranteed to be valid WSDL/XML**
  - Web service provider can focus on main-path vs. error path
- **Multiple generation options**
  - JAX-RPC vs. JAX-WS
  - Use one format consistently, otherwise different generated code
  - WSDL may dictate what runtime is needed
- **Tooling limitations**
  - Types limited to Java types - e.g. unsigned integers, xsd:any
  - XML options – e.g. choice not supported
  - Versioning – e.g. changing datatypes or removing elements
- **Complex type conflicts**
  - Using multiple WSDLs may see conflicts, if use same type name with same namespace

Suggested Best Practices

- **Establish and use a namespace hierarchy**
  - Group related services within same namespace
  - Avoids conflicts
- **Keep messages well structured**
  - Easier to maintain and reuse definitions
- **Define and use set of common types**
  - Easier to flow output from one message as input to another

➢ **A good design for message interface eliminates issues/problems creating client application**

References

- **Rational Software Architect trial / evaluation**
  - http://www.ibm.com/developerworks/downloads/r/architect/
  - Include the optional WebSphere Application Server component to be able to define a server within RSA environment
- **Open Travel Alliance (OTA) 2.0 Work Group**
  - http://wiki.opentravel.org/index.php/Public:OpenTravel_Projects
  - Access to the project team page requires a login but introduction presentation is available to public

Acknowledgements

Many Thanks to teammates …

Dan Gritter

Junior Rincon

Kishore Nagareddy

Matt Gritter

Thank You !

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