JSF-CDI-EJB

Example jsf-cdi-and-ejb can be browsed at https://github.com/apache/tomee/tree/master/examples/jsf-cdi-and-ejb

The simple application contains a CDI managed bean `CalculatorBean`, which uses the `Calculator` EJB to add two numbers and display the results to the user. The EJB is injected in the managed bean using @Inject annotation.

You could run this in the latest Apache TomEE snapshot

The complete source code is below but lets break down to look at some smaller snippets and see how it works.

A little note on the setup:

As for the libraries, myfaces-api and myfaces-impl are provided in tomee/lib and hence they should not be a part of the war. In maven terms, they would be with scope 'provided'

Also note that we use servlet 2.5 declaration in web.xml <web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://java.sun.com/xml/ns/javaee" xmlns:web="http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd" xsi:schemaLocation="http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd" version="2.5">

And we use 2.0 version of faces-config

```
<faces-config xmlns="http://java.sun.com/xml/ns/javaee"
              xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
      http://java.sun.com/xml/ns/javaee/web-facesconfig_2_0.xsd"
              version="2.0">
```

To make this a cdi-aware-archive (i.e bean archive) an empty beans.xml is added in WEB-INF

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<beans xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
  http://java.sun.com/xml/ns/javaee/beans_1_0.xsd">
</beans>
```

We'll first declare the FacesServlet in the web.xml

```
<servlet>
  <servlet-name>Faces Servlet</servlet-name>
  <servlet-class>javax.faces.webapp.FacesServlet</servlet-class>
  <load-on-startup>1</load-on-startup>
</servlet>
```

FacesServlet acts as the master controller.

We'll then create the calculator.xhtml file.

```
<h:outputText value='Enter first number'/>
<h:inputText value='#{calculatorBean.x}'/>
<h:outputText value='Enter second number'/>
<h:inputText value='#{calculatorBean.y}'/>
<h:commandButton action="#{calculatorBean.add}" value="Add"/>
```

Notice how we've used the bean here. By default, the bean name would be the simple name of the bean class with the first letter in lower case.

We've annotated the `CalculatorBean` with `@RequestScoped`. So when a request comes in, the bean is instantiated and placed in the request scope.

<h:inputText value='#{calculatorBean.x}'/>

Here, getX() method of calculatorBean is invoked and the resulting value is displayed. x being a Double, we rightly should see 0.0 displayed.

When you change the value and submit the form, these entered values are bound using the setters in the bean and then the commandButton-action method is invoked.

In this case, CalculatorBean#add() is invoked.

Calculator#add() delegates the work to the ejb, gets the result, stores it and then returns what view is to be rendered.

The return value "success" is checked up in faces-config navigation-rules and the respective page is rendered.

In our case, 'result.xhtml' page is rendered where use EL and display the result from the request-scoped `calculatorBean`.

Source Code

CalculatorBean

```
import javax.enterprise.context.RequestScoped;
import javax.inject.Named;
import javax.inject.Inject;

@RequestScoped
@Named
public class CalculatorBean {
    @Inject
    Calculator calculator;
    private double x;
    private double y;
    private double result;

    public double getX() {
        return x;
    }

    public void setX(double x) {
        this.x = x;
    }

    public double getY() {
        return y;
    }

    public void setY(double y) {
        this.y = y;
    }

    public double getResult() {
        return result;
    }

    public void setResult(double result) {
        this.result = result;
    }

    public String add() {
        result = calculator.add(x, y);
        return "success";
    }
}
```

Calculator

```
package org.superbiz.jsf;

import javax.ejb.Stateless;

@Stateless
public class Calculator{

    public double add(double x, double y) {
        return x + y;
    }
}
```

web.xml

<?xml version="1.0"?>

<web-app xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://java.sun.com/xml/ns/javaee" xmlns:web="http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd" xsi:schemaLocation="http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd" version="2.5">

```
<description>MyProject web.xml</description>
```

```
<!-- Faces Servlet -->
<servlet>
```

```
<servlet-name>Faces Servlet</servlet-name>
<servlet-class>javax.faces.webapp.FacesServlet</servlet-class>
<load-on-startup>1</load-on-startup>
  </servlet>

  <!-- Faces Servlet Mapping -->
  <servlet-mapping>
<servlet-name>Faces Servlet</servlet-name>
<url-pattern>*.jsf</url-pattern>
  </servlet-mapping>

  <!-- Welcome files -->
  <welcome-file-list>
<welcome-file>index.jsp</welcome-file>
<welcome-file>index.html</welcome-file>
  </welcome-file-list>
```

```
</web-app>


#Calculator.xhtml

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"
  xmlns:f="http://java.sun.com/jsf/core"
  xmlns:h="http://java.sun.com/jsf/html">


<h:body bgcolor="white">
<f:view>
    <h:form>
        <h:panelGrid columns="2">
            <h:outputText value='Enter first number'/>
            <h:inputText value='#{calculatorBean.x}'/>
            <h:outputText value='Enter second number'/>
            <h:inputText value='#{calculatorBean.y}'/>
            <h:commandButton action="#{calculatorBean.add}" value="Add"/>
        </h:panelGrid>
    </h:form>
</f:view>
</h:body>
</html>


 #Result.xhtml

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"
  xmlns:f="http://java.sun.com/jsf/core"
  xmlns:h="http://java.sun.com/jsf/html">

<h:body>
<f:view>
<h:form id="mainForm">
    <h2><h:outputText value="Result of adding #{calculatorBean.x} and
#{calculatorBean.y} is #{calculatorBean.result }"/></h2>
    <h:commandLink action="back">
        <h:outputText value="Home"/>
    </h:commandLink>
</h:form>
</f:view>
</h:body>
</html>
```

```
#faces-config.xml

<?xml version="1.0"?>
<faces-config xmlns="http://java.sun.com/xml/ns/javaee"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
  http://java.sun.com/xml/ns/javaee/web-facesconfig_2_0.xsd"
          version="2.0">

  <navigation-rule>
<from-view-id>/calculator.xhtml</from-view-id>
<navigation-case>
  <from-outcome>success</from-outcome>
  <to-view-id>/result.xhtml</to-view-id>
</navigation-case>
  </navigation-rule>

  <navigation-rule>
<from-view-id>/result.xhtml</from-view-id>
<navigation-case>
  <from-outcome>back</from-outcome>
  <to-view-id>/calculator.xhtml</to-view-id>
</navigation-case>
  </navigation-rule>
</faces-config>
```