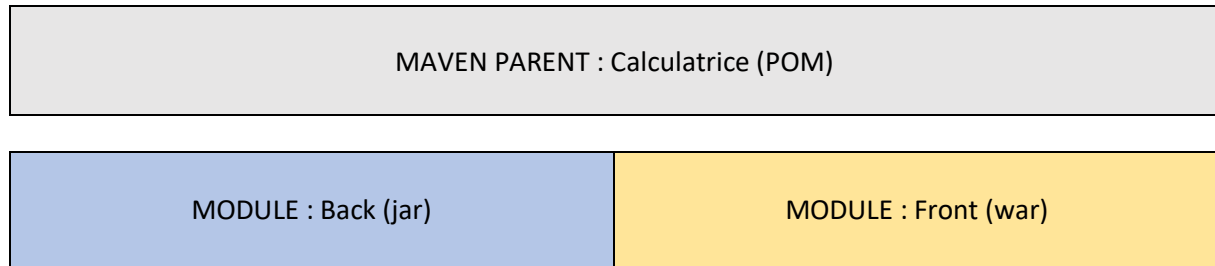
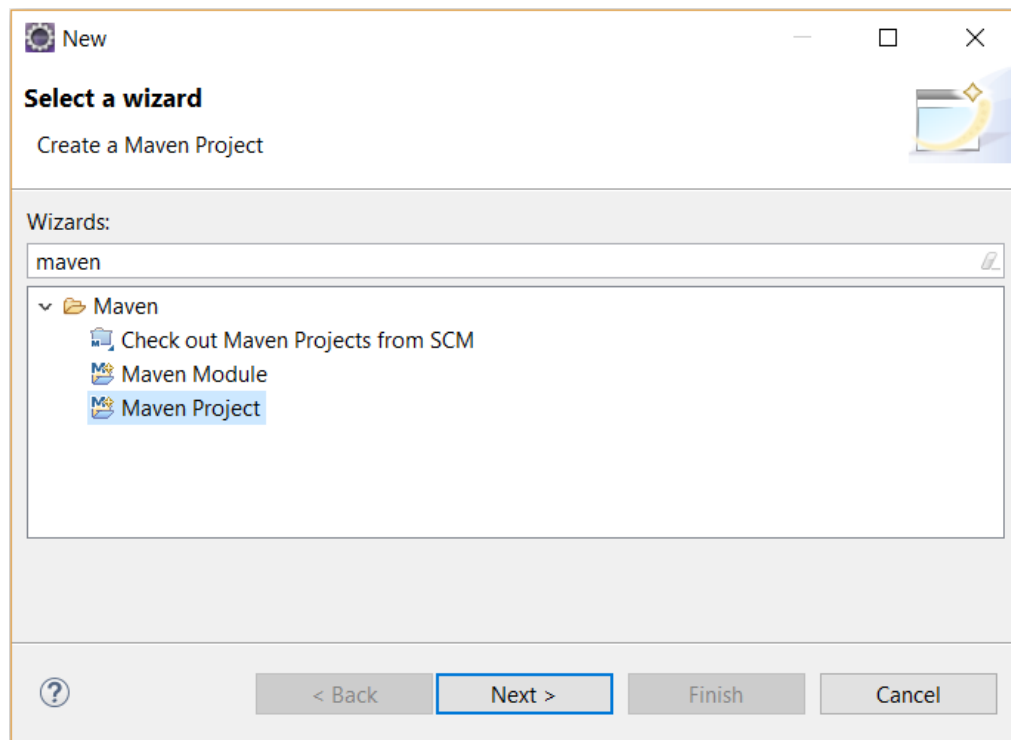


TP – Multiple Module Project




1. CREATION DU PROJET PARENT (POM) : Calculatrice



New Maven Project

New Maven project

Select project name and location



☒ Create a simple project (skip archetype selection)


☒ Use default Workspace location

Location:

☐ Add project(s) to working set

Working set:


▶ Advanced



New Maven Project

New Maven project

Configure project



Artifact

Group Id:

Artifact Id:

Version:

Packaging:

Name:

Description:


Parent Project

Group Id:

Artifact Id:

Version:

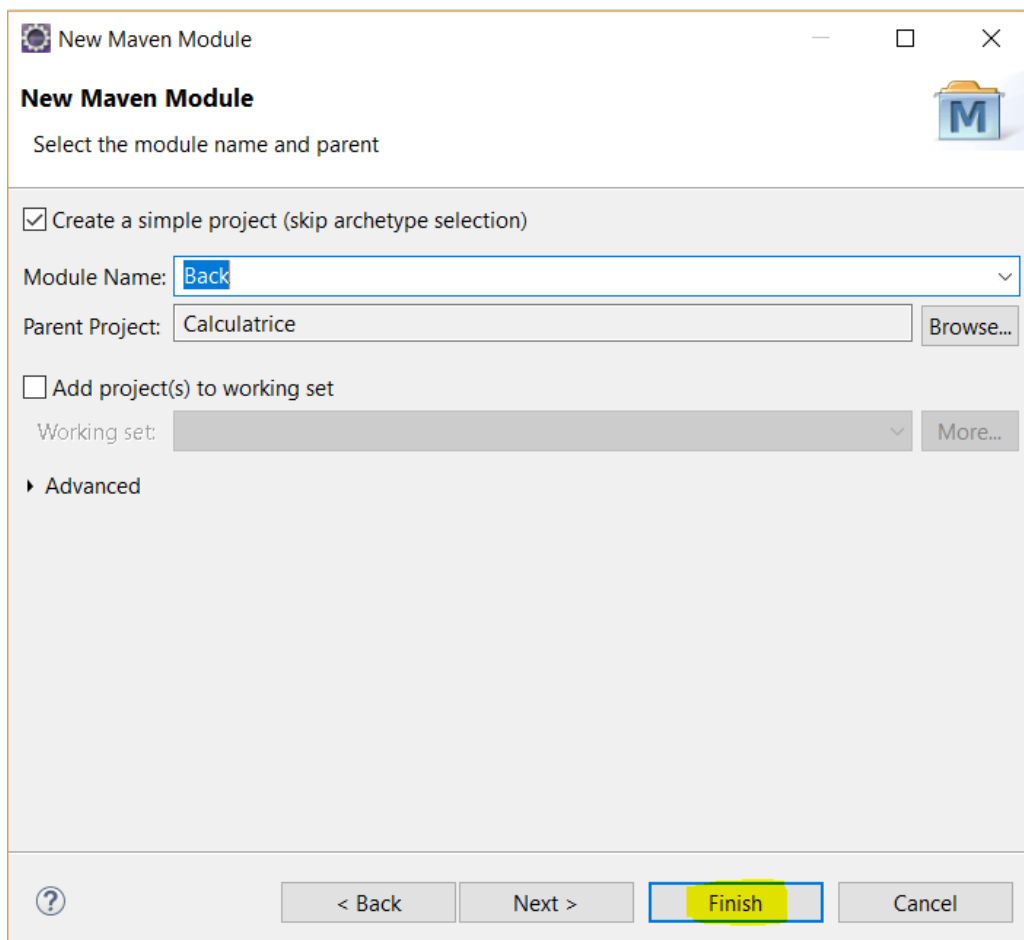
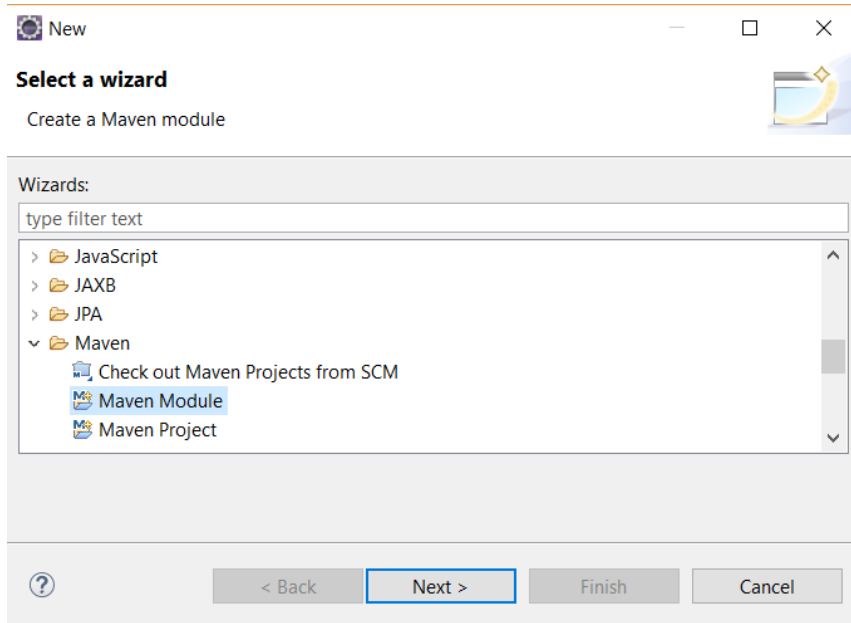
▶ Advanced



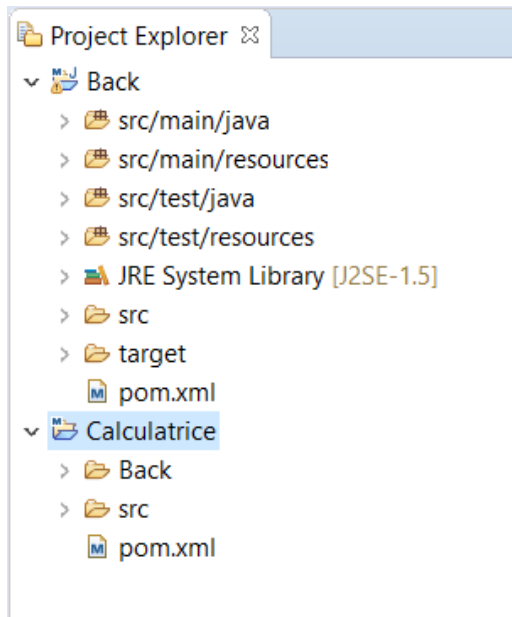
FINISH

2. CREATION DU MODULE BACK-END : Back

Clic droit sur le projet parent « Calculatrice » → New → Others →

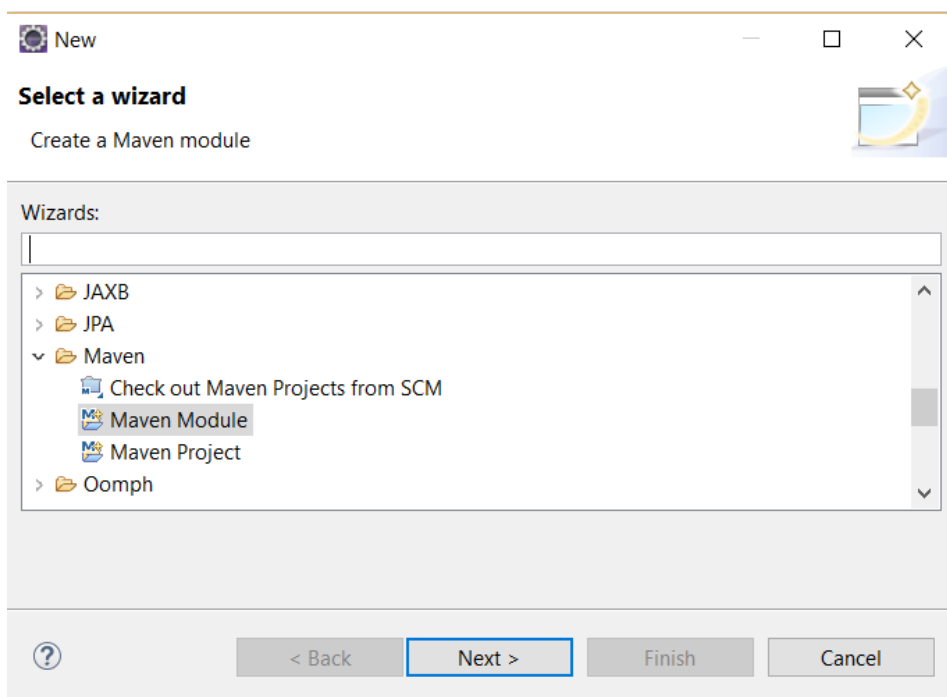


Structure actuelle des 2 projets créés



3. CREATION DU MODULE FRONT-END : Front

Clic droit sur le projet parent « Calculatrice » → New → Others →



New Maven Module

New Maven Module

Select the module name and parent

☒ Create a simple project (skip archetype selection)

Module Name: Front

Parent Project: Calculatrice

Browse...

☐ Add project(s) to working set

Working set:

More...

Advanced

?

< Back

Next >

Finish

Cancel

New Maven Module

New Maven Module

Configure project

Artifact

Group Id: com.formation.proj

Artifact Id: Front

Version: 0.0.1-SNAPSHOT

Packaging: war

Name:

Description:

Parent Project

Group Id: com.formation.proj

Artifact Id: Calculatrice

Version: 0.0.1-SNAPSHOT

Advanced

?

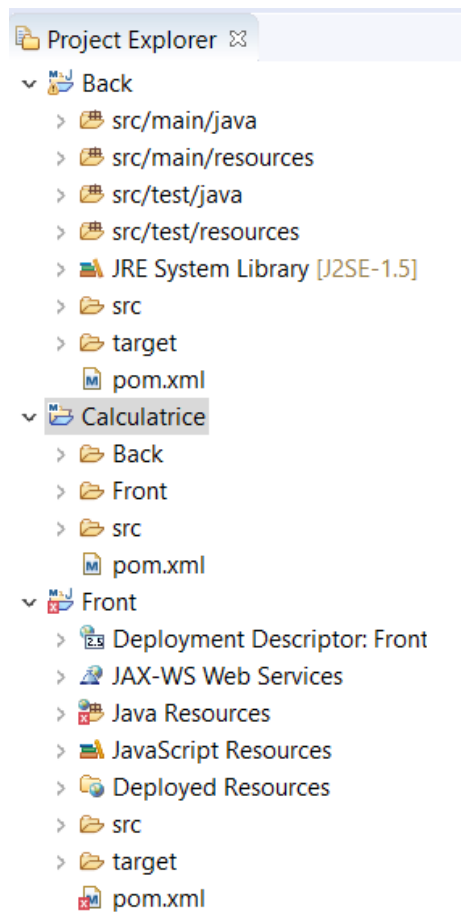
< Back

Next >

Finish

Cancel

Structure des 3 projets créés



4. ANALYSE DES P.O.M

POM.xml (parent) : Calculatrice

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

  <modelVersion>4.0.0</modelVersion>
  <groupId>com.formation.projet</groupId>
  <artifactId>Calculatrice</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <packaging>pom</packaging>

  <modules>
    <module>Back</module>
    <module>Front</module>
  </modules>

</project>
```

POM.xml (Back) : ajouter la partie surlignée

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>com.formation.projet</groupId>
    <artifactId>Calculatrice</artifactId>
    <version>0.0.1-SNAPSHOT</version>
  </parent>

  <artifactId>Back</artifactId>
  <packaging>jar</packaging>

</project>
```

Pom.xml (Front) :

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

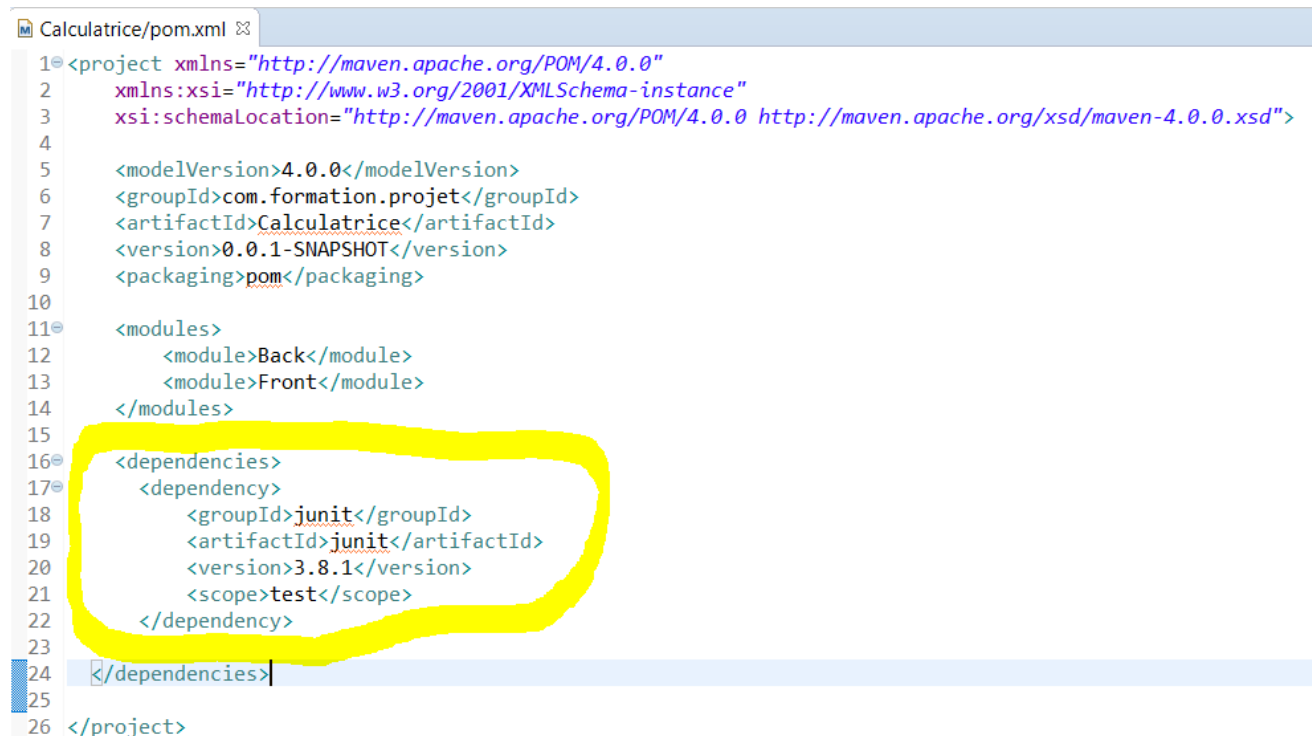
  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>com.formation.projet</groupId>
    <artifactId>Calculatrice</artifactId>
    <version>0.0.1-SNAPSHOT</version>
  </parent>
  <artifactId>Front</artifactId>
  <packaging>war</packaging>

</project>
```

5. CONFIGURATION DU PARENT

Ajout de dépendances : JUNIT

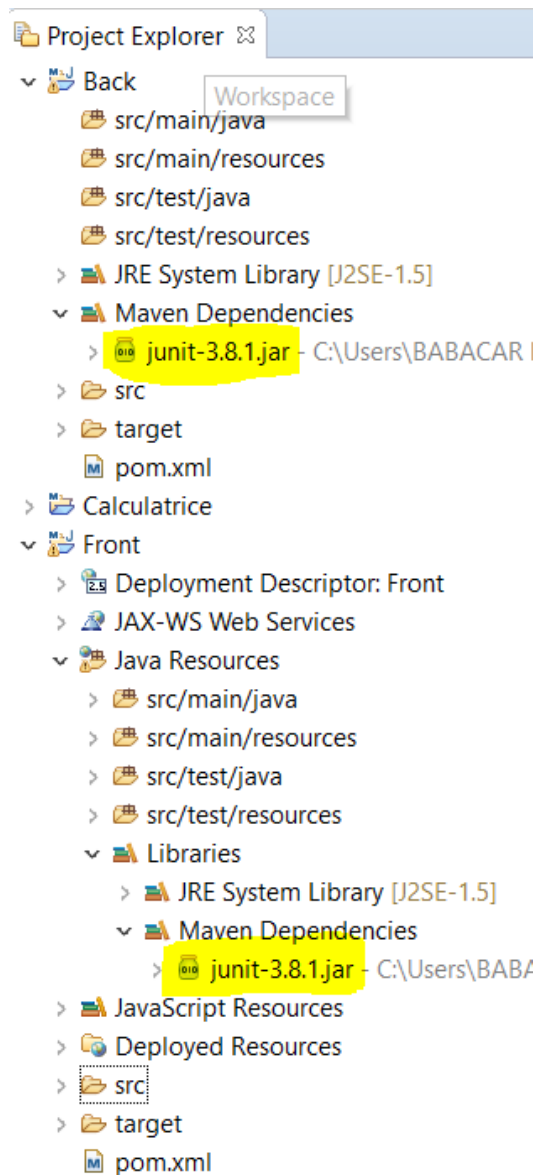
Pom.xml : Calculatrice (Parent)



```
Calculatrice/pom.xml
1 <project xmlns="http://maven.apache.org/POM/4.0.0"
2   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3   xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
4
5   <modelVersion>4.0.0</modelVersion>
6   <groupId>com.formation.projet</groupId>
7   <artifactId>Calculatrice</artifactId>
8   <version>0.0.1-SNAPSHOT</version>
9   <packaging>pom</packaging>
10
11   <modules>
12     <module>Back</module>
13     <module>Front</module>
14   </modules>
15
16   <dependencies>
17     <dependency>
18       <groupId>junit</groupId>
19       <artifactId>junit</artifactId>
20       <version>3.8.1</version>
21       <scope>test</scope>
22     </dependency>
23
24   </dependencies>
25
26 </project>
```

Enregistrer

On distingue par la suite l'héritage des dépendances par les modules



6. IMPLEMENTATION DU MODULE BACK

Depuis le projet : Back

Aller dans : src/main/java → Clic droit → New → Class

Création de la classe **Calcul**

New Java Class

Create a new Java class.

Source folder: Back/src/main/java Browse...

Package: com.formation Browse...

☐ Enclosing type: Browse...

Name: Calcul

Modifiers: ☒ public ☐ package ☐ private ☐ protected
☐ abstract ☐ final ☐ static

Superclass: java.lang.Object Browse...

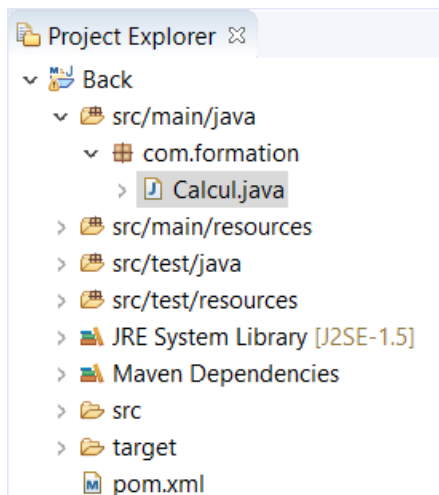
Interfaces: Add...
Remove

Which method stubs would you like to create?

☐ public static void main(String[] args)
☐ Constructors from superclass
☒ Inherited abstract methods

Do you want to add comments? (Configure templates and default value [here](#))
☐ Generate comments

? Finish Cancel



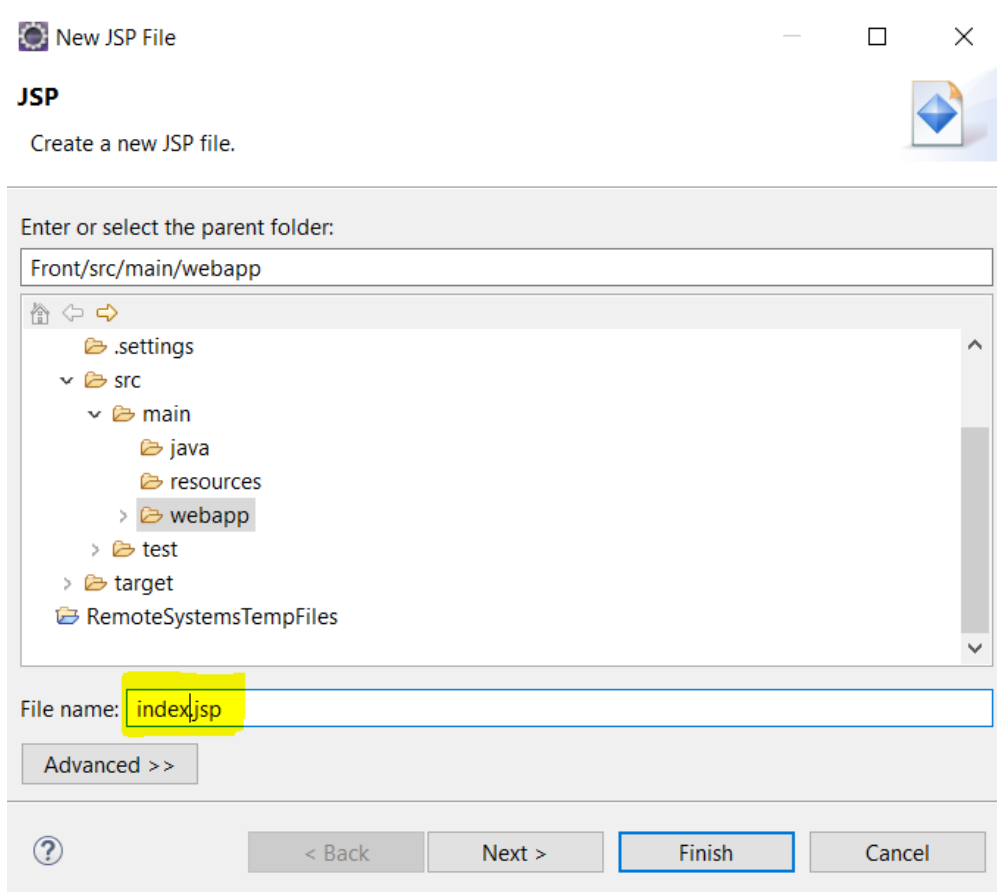
Contenu de la classe **Calcul.java**

```
*Calcul.java
1 package com.formation;
2
3 public class Calcul {
4
5     public int additionner(int a, int b) {
6
7         int resultat = a + b;
8         System.out.println("Module Back : Méthode additionner : Résultat : " + resultat);
9
10        return resultat;
11    }
12 }
13
14 }
15
```

7. IMPLEMENTATION DU MODULE FRONT

Dans le projet Front → Deployed Resources → webapp → Clic droit → New → JSP File

Nom : **index.jsp**



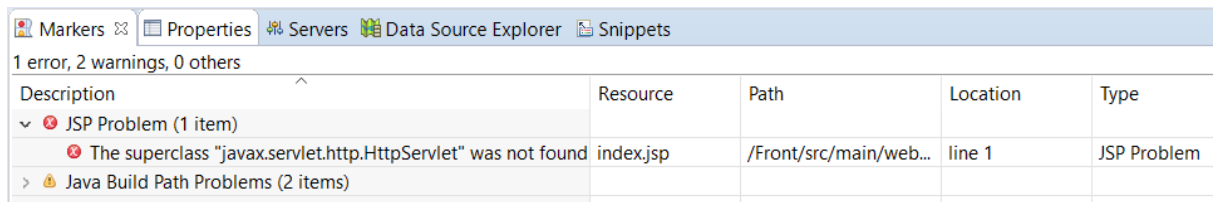
FINISH

- ▼ Front
 - > Deployment Descriptor: Front
 - > JAX-WS Web Services
 - > Java Resources
 - > JavaScript Resources
 - ▼ Deployed Resources
 - ▼ webapp
 - > WEB-INF
 - index.jsp
 - > web-resources
 - > src
 - > target
 - pom.xml

Contenu de **index.jsp**

```
1 <%@ page language="java" contentType="text/html; charset=ISO-8859-1"
2   pageEncoding="ISO-8859-1"%>
3 <!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
4 <html>
5 <head>
6 <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
7 <title>Insert title here</title>
8 </head>
9 <body>
10
11 <B>Calculatrice</B>
12 <center>
13 <form method="GET" action="add">
14 <table>
15 <tr>
16 <td>Premier Nombre</td>
17 <td><input type="text" name="nombre1"></td>
18 </tr>
19 <tr>
20 <td>Secon Nombre</td>
21 <td><input type="text" name="nombre2"></td>
22 </tr>
23 </table>
24 <input type="submit" value="additionner">
25 </form>
26 </center>
27
28 </body>
29 </html>
```

Erreur :



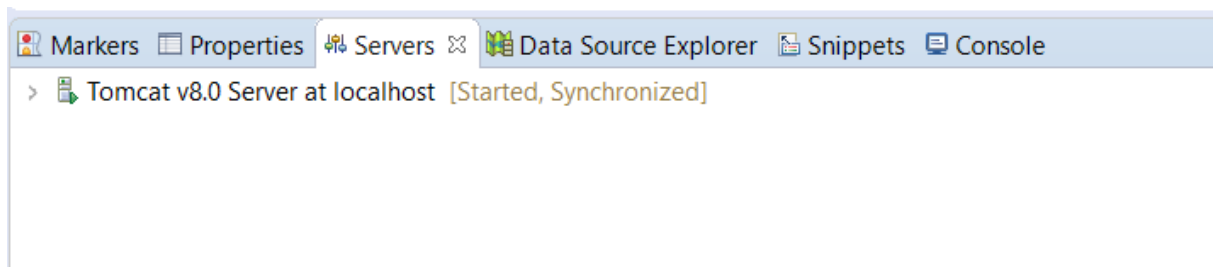
Markers Properties Servers Data Source Explorer Snippets

1 error, 2 warnings, 0 others

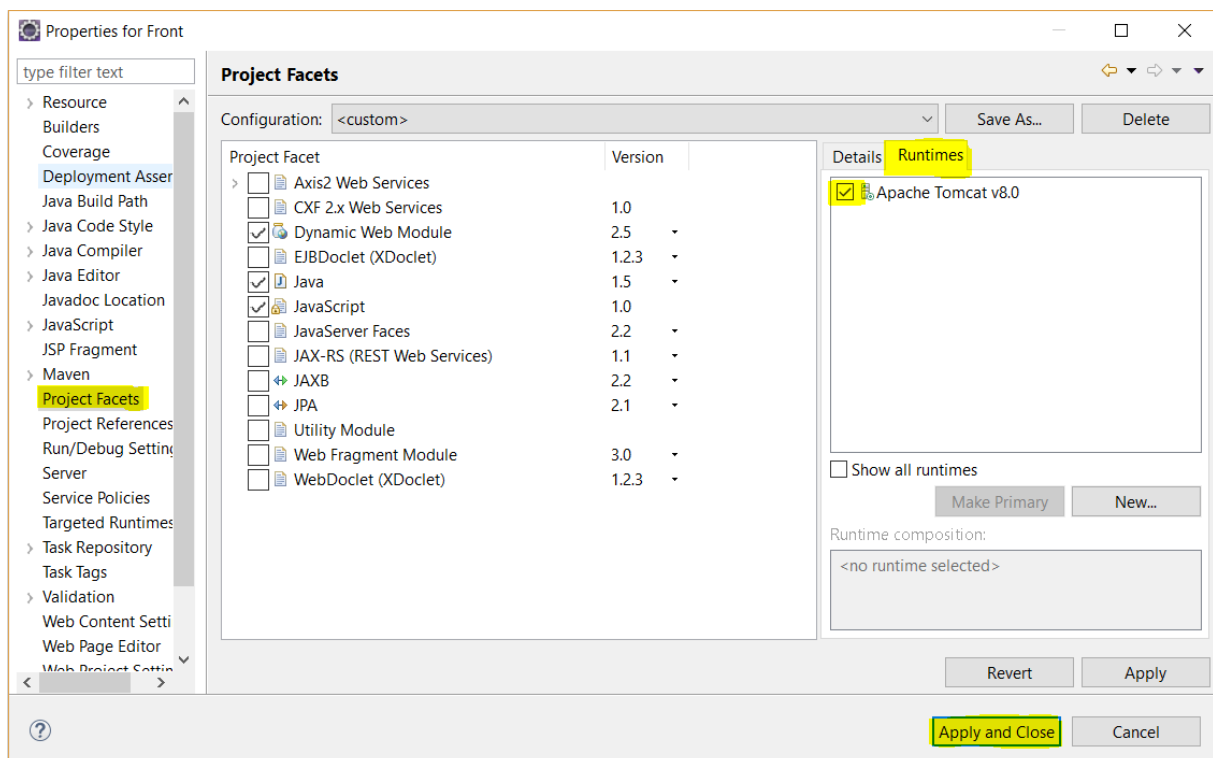
Description	Resource	Path	Location	Type
✖ JSP Problem (1 item)				
✖ The superclass "javax.servlet.http.HttpServlet" was not found	index.jsp	/Front/src/main/web...	line 1	JSP Problem
> ⚠ Java Build Path Problems (2 items)				

Solution :

- Ajouter un serveur Tomcat 8 au Workspace (télécharger sur le site d'apache)



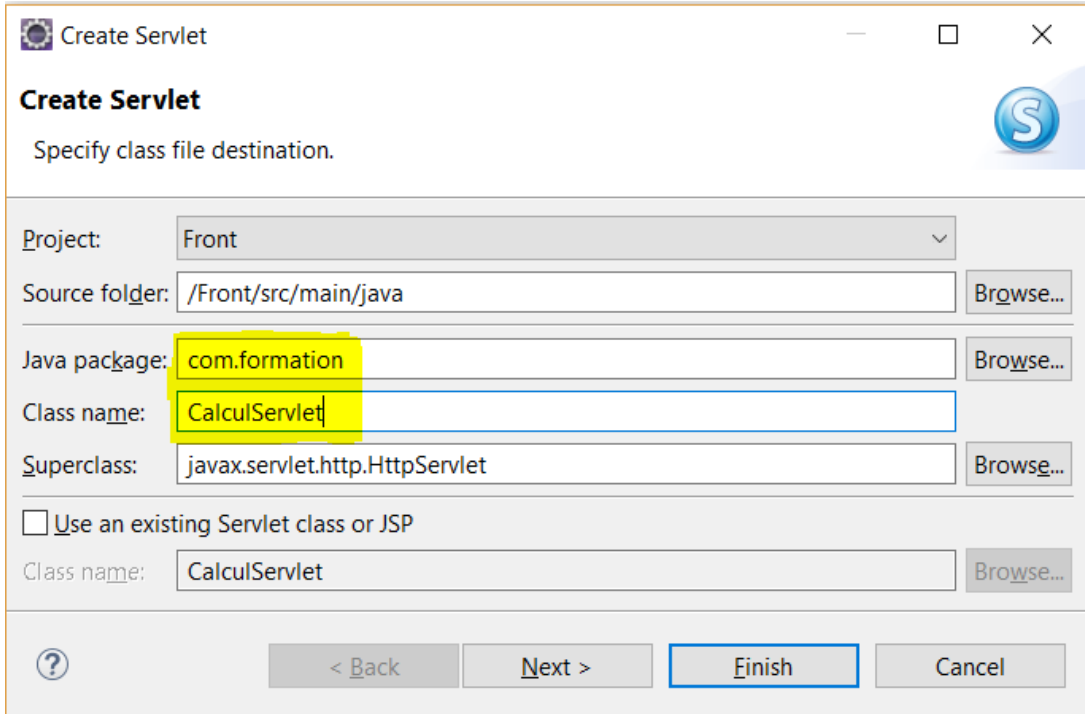
- Référencer le serveur ajouté pour le projet Front → clic droit → Properties



Si problème persiste : Re-forcer l'ajout du serveur depuis Build Path → Libraries → Add Library

8. AJOUT DE LA SERVLET : CALCUL

Dans le projet Front → Java Resources → src/main/java → clic droit → New → Servlet



Create Servlet
Specify class file destination.

Project: Front
Source folder: /Front/src/main/java
Java package: com.formation
Class name: CalculServlet
Superclass: javax.servlet.http.HttpServlet

☐ Use an existing Servlet class or JSP
Class name: CalculServlet

< Back Next > Finish Cancel

Dans la servlet créée « CalculServlet », ajouter l'annotation **@WebServlet** comme ci-dessous

```
CalculServlet.java
1 package com.formation;
2
3 import java.io.IOException;
4 import javax.servlet.ServletException;
5 import javax.servlet.annotation.WebServlet;
6 import javax.servlet.http.HttpServlet;
7 import javax.servlet.http.HttpServletRequest;
8 import javax.servlet.http.HttpServletResponse;
9
10 /**
11  * Servlet implementation class CalculServlet
12  */
13
14 @WebServlet("/add")
15 public class CalculServlet extends HttpServlet {
```

9. AJOUT DE DEPENDANCES SPECIFIQUES AU FRONT

Revenons au **pom.xml** du projet **Front** afin de rajouter 2 dépendances nécessaires

1. La première : **Servlet API**
2. La deuxième : **Le module Back qui sait faire l'addition**

Module Front : Pom.xml avant modification

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>com.formation.projet</groupId>
    <artifactId>Calculatrice</artifactId>
    <version>0.0.1-SNAPSHOT</version>
  </parent>
  <artifactId>Front</artifactId>
  <packaging>war</packaging>

</project>
```

Module Front : Pom.xml après ajout des 2 dépendances nécessaires

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/xsd/maven-4.0.0.xsd">

  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>com.formation.projet</groupId>
    <artifactId>Calculatrice</artifactId>
    <version>0.0.1-SNAPSHOT</version>
  </parent>
  <artifactId>Front</artifactId>
  <packaging>war</packaging>

  <dependencies>
    <dependency>
      <groupId>com.formation.projet</groupId>
      <artifactId>Back</artifactId>
      <version>0.0.1-SNAPSHOT</version>
    </dependency>
    <dependency>
      <groupId>javax.servlet</groupId>
      <artifactId>javax.servlet-api</artifactId>
      <version>3.0.1</version>
      <scope>provided</scope>
    </dependency>
  </dependencies>

</project>
```

10. MAVEN PHASES

Nous allons dans un premier temps faire un clean du projet avant de le reconstruire complètement jusqu'à l'étape de l'installation au sein du repository local

Pointez sur le projet Parent « Calculatrice »

- Clic droit sur le projet **Calculatrice (Parent)** → Run As → **Maven clean**

```
[INFO]
[INFO] Calculatrice ..... SUCCESS [ 0.160 s]
[INFO] Back ..... SUCCESS [ 0.020 s]
[INFO] Front ..... SUCCESS [ 0.032 s]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 0.319 s
[INFO] Finished at: 2018-11-17T16:04:06+01:00
[INFO] Final Memory: 6M/121M
[INFO] -----
```

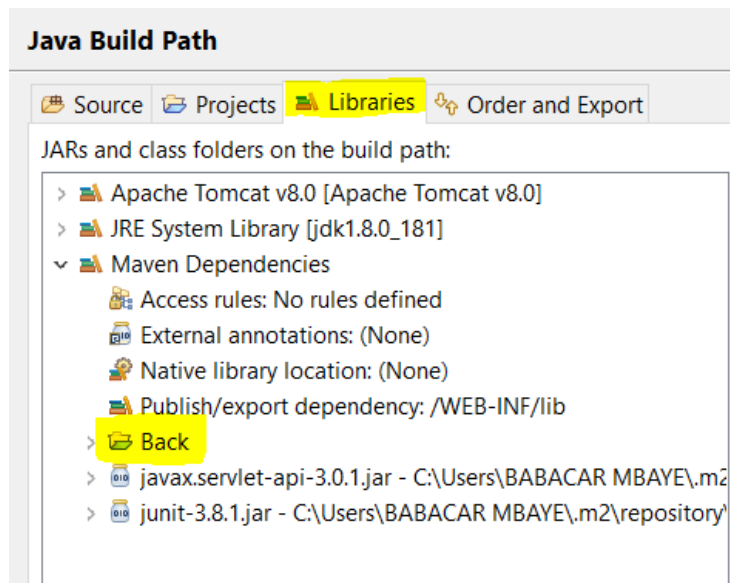
Puis

- Clic droit sur le projet **Calculatrice (Parent)** → Run As → **Maven install**

```
[INFO] --- maven-install-plugin:2.4:install (default-install) @ Front ---
[INFO] Installing C:\Users\BABACAR MBAYE\Desktop\Cours\_DevOps\IntegrationContinue\maven_workspace\TP2\Calculatrice\Front\targe
[INFO] Installing C:\Users\BABACAR MBAYE\Desktop\Cours\_DevOps\IntegrationContinue\maven_workspace\TP2\Calculatrice\Front\pom.x
[INFO] -----
[INFO] Reactor Summary:
[INFO]
[INFO] Calculatrice ..... SUCCESS [ 0.272 s]
[INFO] Back ..... SUCCESS [ 1.279 s]
[INFO] Front ..... SUCCESS [ 0.580 s]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 2.238 s
[INFO] Finished at: 2018-11-17T16:05:25+01:00
[INFO] Final Memory: 22M/205M
[INFO] -----
```

Si problème de JRE → Pointez le JRE System Library sur les libs de la JDK.

Après un **Maven clean install** réalisé avec **succès**. Nous voyons depuis le « Java Build Path » du projet **Front** (Clic droit → Properties → Java Build Path), une référence au module « Back »



11. IMPLEMENTATION DE LA SERVLET : CalculServlet

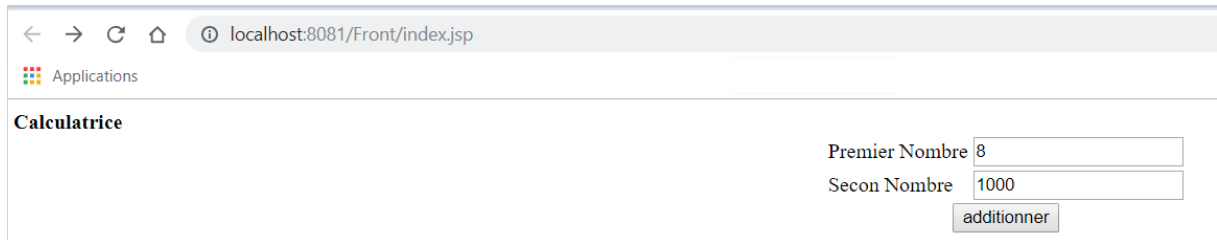
- ▼ Front
 - > Deployment Descriptor: Front
 - > JAX-WS Web Services
 - ▼ Java Resources
 - ▼ src/main/java
 - ▼ com.formation
 - > **CalculServlet.java**
 - > src/main/resources

Dans la méthode **doGet()** de **CalculServlet**, implémenter comme ci-dessous :

```
31 protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
32
33     int num1 = Integer.parseInt(request.getParameter("nombre1"));
34     int num2 = Integer.parseInt(request.getParameter("nombre2"));
35     Calcul calcul = new Calcul();
36     int resultat = calcul.additionner(num1, num2);
37
38     response.setContentType("text/html");
39     PrintWriter out = response.getWriter();
40
41     out.println("<html>");
42     out.println("<head><title>Addition</title></head>");
43     out.println("<center>");
44     out.println("<table>");
45     out.println("<tr>");
46     out.println("<td> Nombre 1 </td>");
47     out.println("<td> + num1 + "</td>");
48     out.println("</tr>");
49     out.println("<tr>");
50     out.println("<td> Nombre 2 </td>");
51     out.println("<td> + num2 + "</td>");
52     out.println("</tr>");
53     out.println("<tr>");
54     out.println("<td> Resultat </td>");
55     out.println("<td> + resultat + "</td>");
56     out.println("</tr>");
57     out.println("</table>");
58     out.println("</center>");
59
60 }
```

12. TEST DE L'APPLICATION

Depuis le module Front → Aller sur **index.jsp** → clic droit → Run as → **Run on server**



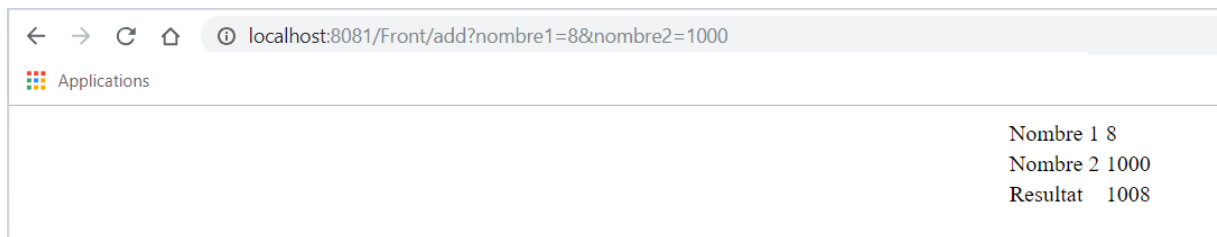
← → ↻ 🏠 ⓘ localhost:8081/Front/index.jsp

Applications

Calculatrice

Premier Nombre

Secon Nombre



← → ↻ 🏠 ⓘ localhost:8081/Front/add?nombre1=8&nombre2=1000

Applications

Nombre 1 8
Nombre 2 1000
Resultat 1008