

Département d'Informatique

Filière : IAAD

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Université Moulay Ismail faculté des Sciences Meknès

Département d'Informatique

TP N° 5: Web services SOAP WSDL

Module : Systèmes Distribués

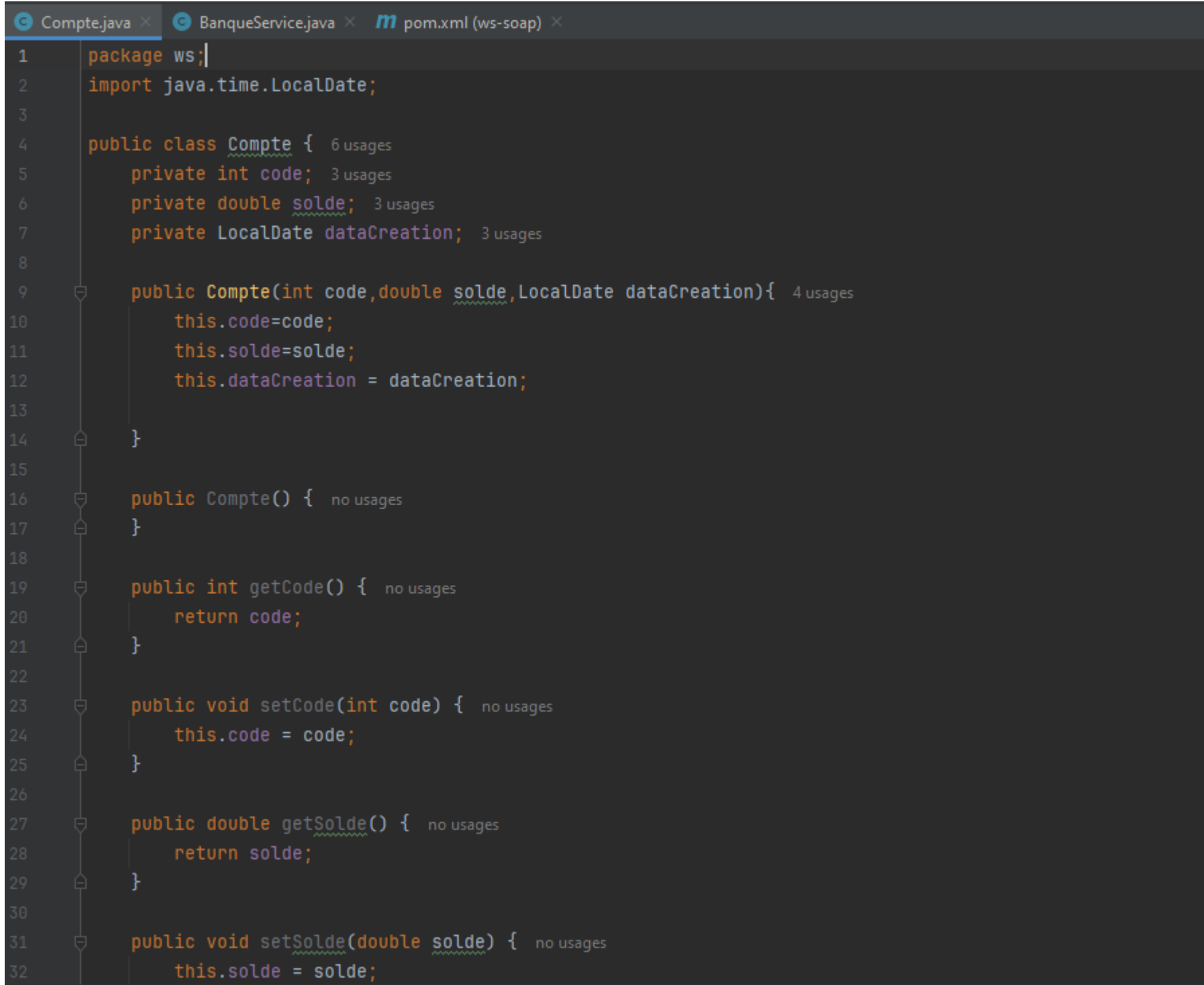
Réalisé par :

- ***AIT BOUCHALA fatime ezzahrae***

1. Créer un Web service qui permet de :

- Convertir un montant de l'euro en DH
- Consulter un Compte
- Consulter une Liste de comptes

La Création de classe Compte :



```
1 package ws;
2 import java.time.LocalDate;
3
4 public class Compte { 6 usages
5     private int code; 3 usages
6     private double solde; 3 usages
7     private LocalDate dataCreation; 3 usages
8
9     public Compte(int code, double solde, LocalDate dataCreation){ 4 usages
10         this.code=code;
11         this.solde=solde;
12         this.dataCreation = dataCreation;
13
14     }
15
16     public Compte() { no usages
17     }
18
19     public int getCode() { no usages
20         return code;
21     }
22
23     public void setCode(int code) { no usages
24         this.code = code;
25     }
26
27     public double getSolde() { no usages
28         return solde;
29     }
30
31     public void setSolde(double solde) { no usages
32         this.solde = solde;
```

La Création de classe Compte service avec une liste des comptes Et des annotation @WebService @WebMethod

```
ws-soap > src > main > java > ws > BanqueService > lisComptes
Compte.java BanqueService.java pom.xml (ws-soap)
1 package ws;
2
3 import jakarta.jws.WebMethod;
4 import jakarta.jws.WebParam;
5 import jakarta.jws.WebService;
6
7 import java.time.LocalDate;
8 import java.util.List;
9 @WebService(serviceName = "BanqueWS") no usages
10 public class BanqueService {
11     @WebMethod(operationName = "conversionEurotoDH") no usages
12     public double conversion(@WebParam(name="montant") double mt){
13         return mt*11;
14     }
15     @WebMethod no usages
16
17     public Compte getCompte(@WebParam(name="code") int code){
18         return new Compte(code, solde: Math.random()*60000, LocalDate.now());
19     }
20     @WebMethod no usages
21     public List<Compte>lisComptes(){
22         return List.of(
23             new Compte( code: 1, solde: Math.random()*60000,LocalDate.now()),
24             new Compte( code: 2, solde: Math.random()*60000,LocalDate.now()),
25             new Compte( code: 3, solde: Math.random()*60000,LocalDate.now())
26         );
27     }
28 }
29
```

Et on a Ajouter la dépendance suivante :

```

<project xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  <parent>
    <relativePath/> <!-- lookup parent from repository -->
  </parent>
  <groupId>org.example</groupId>
  <artifactId>ws-soap</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <name>ws-soap</name>
  <description>ws-soap</description>
  <properties>
    <java.version>17</java.version>
  </properties>

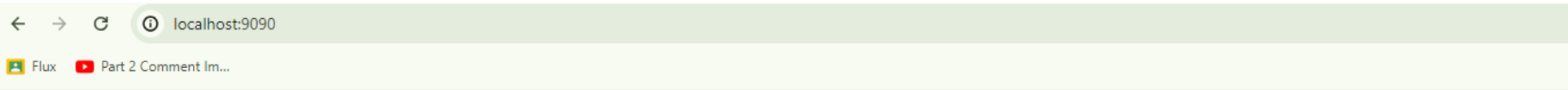
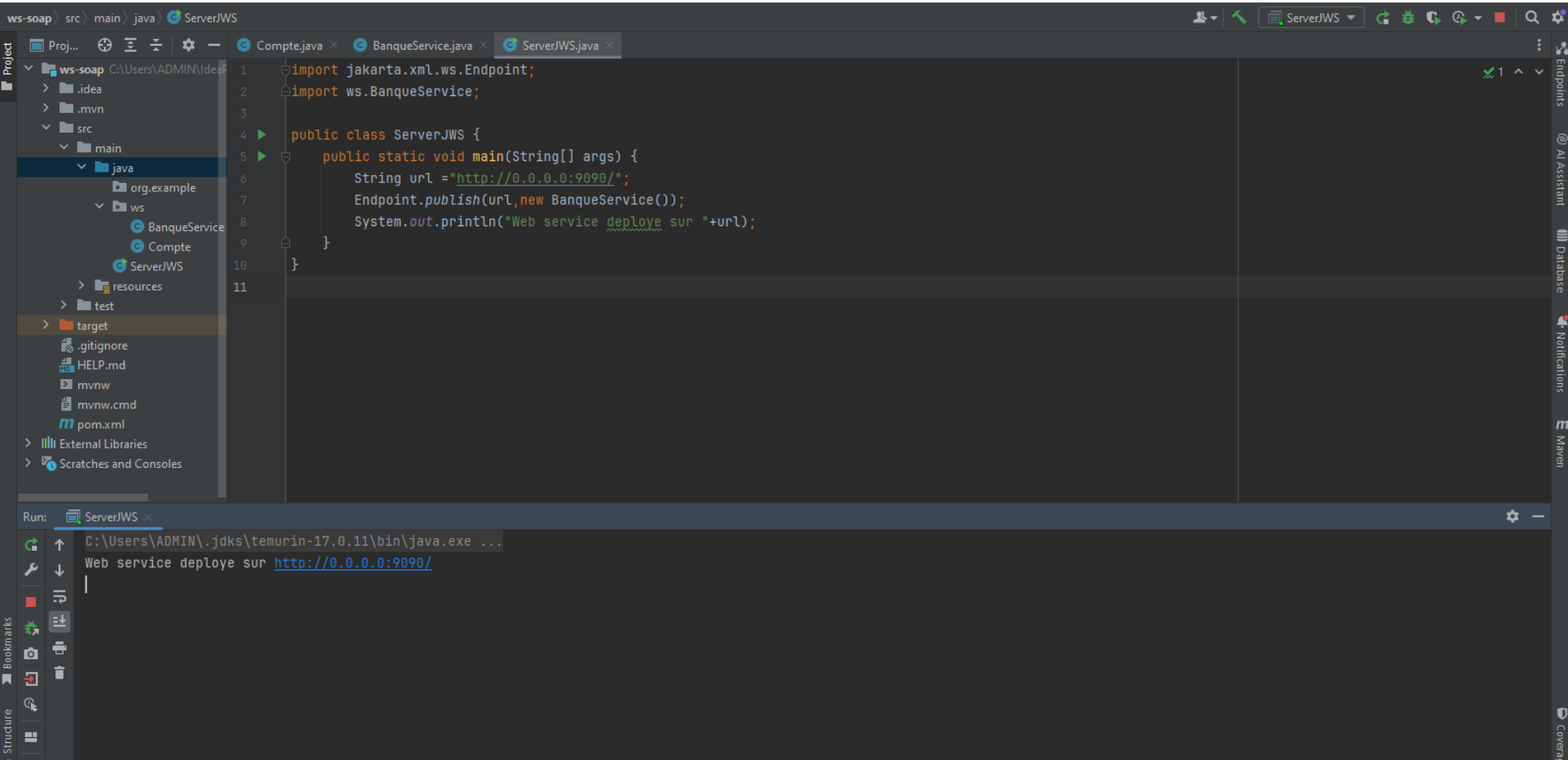
  <dependencies>
    <!-- https://mvnrepository.com/artifact/com.sun.xml.ws/jaxws-ri -->
    <dependency>
      <groupId>com.sun.xml.ws</groupId>
      <artifactId>jaxws-ri</artifactId>
      <version>4.0.2</version>
      <type>pom</type>
    </dependency>
  </dependencies>

</project>

```

2. Déployer le Web service avec un simple Serveur JaxWS

Dans cette partie on va créer notre propre serveur JWS

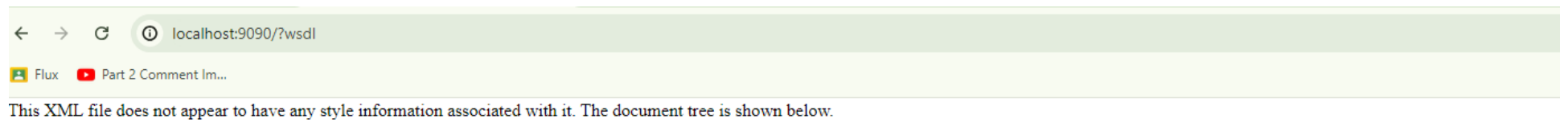


Services Web

Adresse	Informations
Nom de service : {http://ws/}BanqueWS	Adresse : http://localhost:9090/
Nom de port : {http://ws/}BanqueServicePort	WSDL: http://localhost:9090/?wsdl
	Classe d'implémentation : ws.BanqueService

3. Consulter et analyser le WSDL avec un Browser http

Le WSDL est un document xml qui permet de faire la description de l’interface de web service.

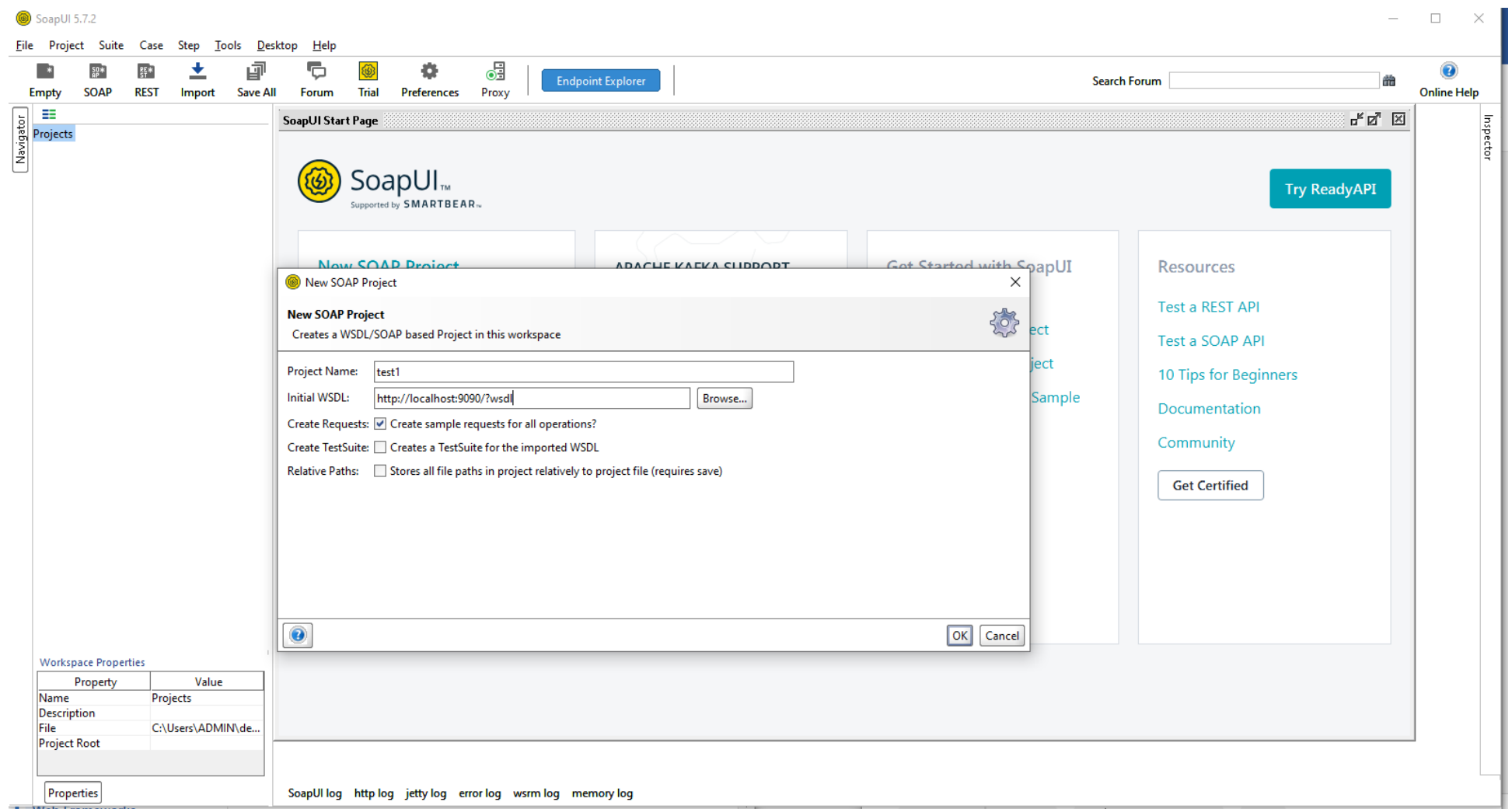


```
<!-- Published by XML-WS Runtime (https://github.com/eclipse-ee4j/metro-jax-ws). Runtime's version is XML-WS Runtime 4.0.2 git-revision#0264419. -->
<!-- Generated by XML-WS Runtime (https://github.com/eclipse-ee4j/metro-jax-ws). Runtime's version is XML-WS Runtime 4.0.2 git-revision#0264419. -->
<?xml version="1.0" encoding="UTF-8" ?>
<definitions xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" xmlns:wsp="http://www.w3.org/ns/ws-policy" xmlns:wsp1_2="http://schemas.xmlsoap.org/ws/2007/05/policy" xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata" xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:tns="http://ws/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns: xsi="http://www.w3.org/2001/XMLSchema-instance" targetNamespace="http://ws/" name="BanqueWS">
  <types>
    <xsd:schema>
      <xsd:import namespace="http://ws/" schemaLocation="http://localhost:9090/?xsd=1"/>
    </xsd:schema>
  </types>
  <message name="getCompte">
    <part name="parameters" element="tns:getCompte"/>
  </message>
  <message name="getCompteResponse">
    <part name="parameters" element="tns:getCompteResponse"/>
  </message>
  <message name="lisComptes">
    <part name="parameters" element="tns:lisComptes"/>
  </message>
  <message name="lisComptesResponse">
    <part name="parameters" element="tns:lisComptesResponse"/>
  </message>
  <message name="conversionEurotoDH">
    <part name="parameters" element="tns:conversionEurotoDH"/>
  </message>
  <message name="conversionEurotoDHResponse">
    <part name="parameters" element="tns:conversionEurotoDHResponse"/>
  </message>
  <portType name="BanqueService">
    <operation name="getCompte">
      <input wsam:Action="http://ws/BanqueService/getCompteRequest" message="tns:getCompte"/>
      <output wsam:Action="http://ws/BanqueService/getCompteResponse" message="tns:getCompteResponse"/>
    </operation>
    <operation name="lisComptes">
      <input wsam:Action="http://ws/BanqueService/lisComptesRequest" message="tns:lisComptes"/>
      <output wsam:Action="http://ws/BanqueService/lisComptesResponse" message="tns:lisComptesResponse"/>
    </operation>
    <operation name="conversionEurotoDH">
      <input wsam:Action="http://ws/BanqueService/conversionEurotoDHRequest" message="tns:conversionEurotoDH"/>
      <output wsam:Action="http://ws/BanqueService/conversionEurotoDHResponse" message="tns:conversionEurotoDHResponse"/>
    </operation>
  </portType>
  <binding name="BanqueServicePortBinding" type="tns:BanqueService">
    <soap:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
    <operation name="getCompte">
      <soap:operation soapAction=""/>
    </operation>
  </binding>

```

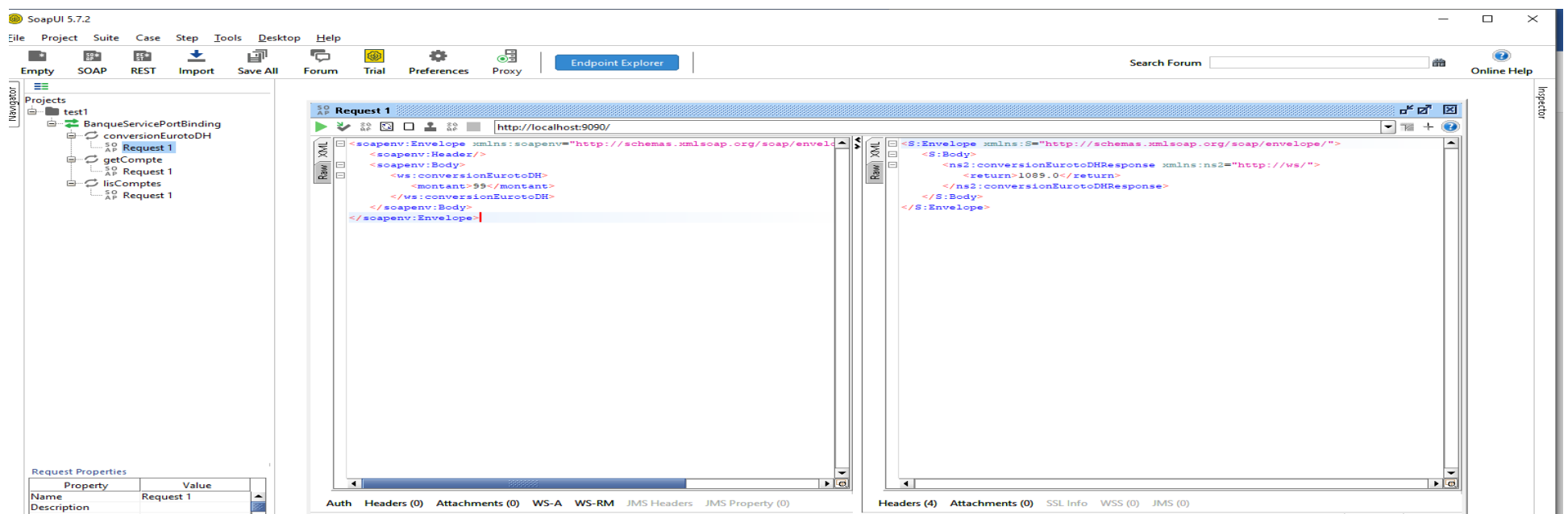
4. Tester les opérations du web service avec un outil comme SoapUI ou Oxygen

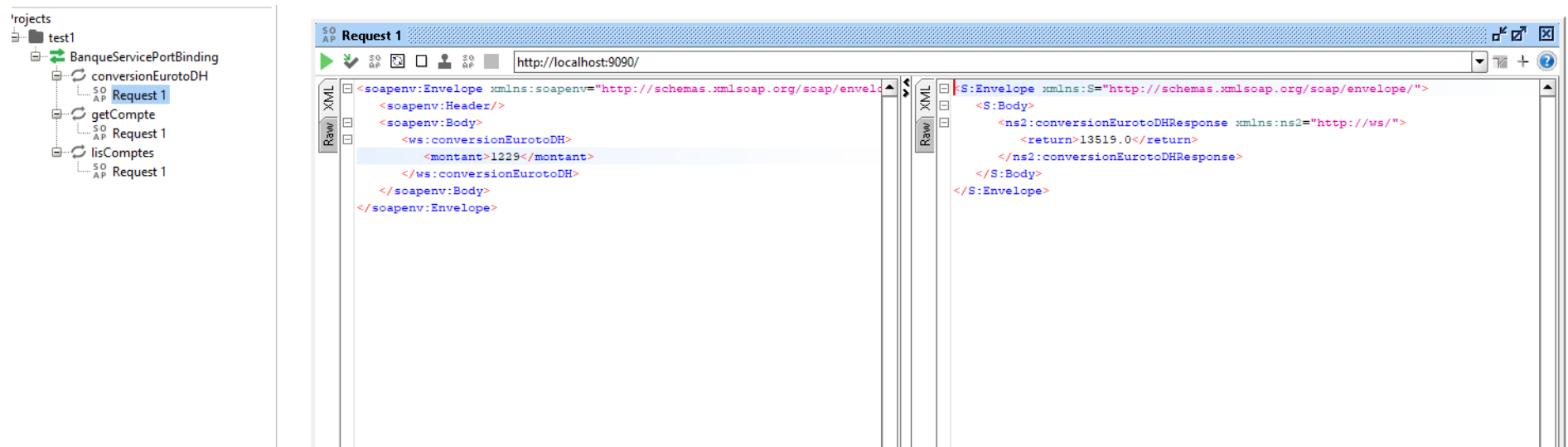
SoapUI est un outil open source qui permet de tester les web service basée sur soap.



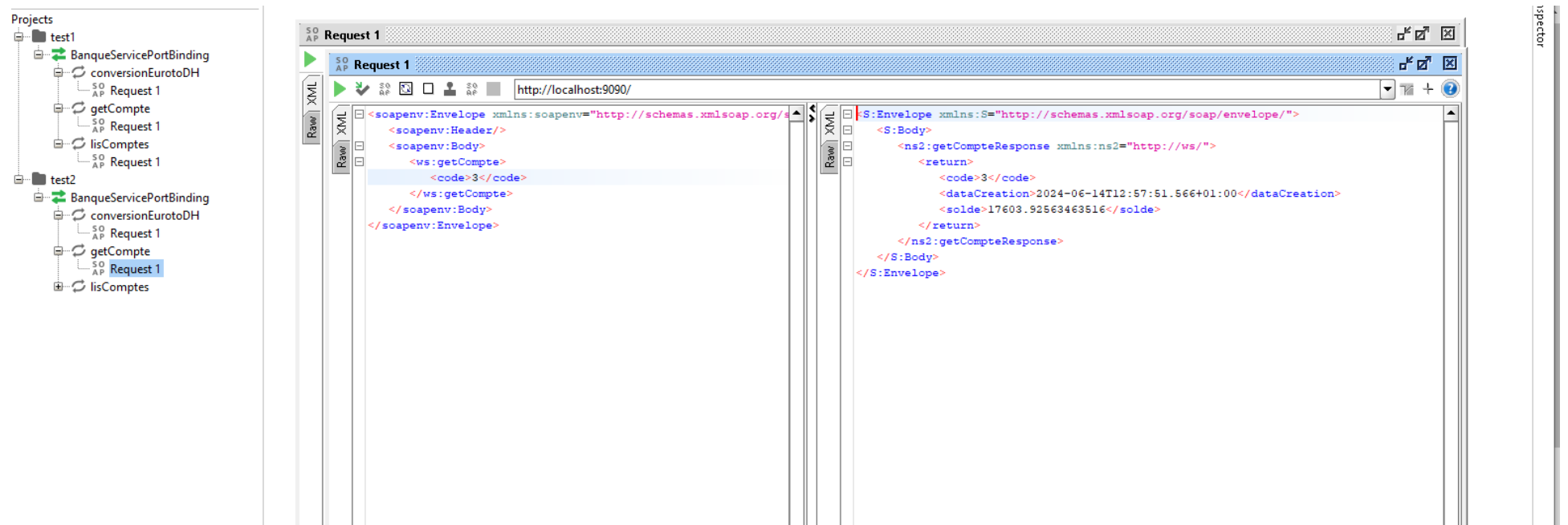
Mon web service bien fonctionne .

➤ Pour La méthode conversionEurotoDH :





➤ Pour la méthode getCompte :



➤ Pour la listes des comptes :

Projects

test1

BanqueServicePortBinding

conversionEurotoDH

Request 1

getCompte

Request 1

lisComptes

Request 1

test2

BanqueServicePortBinding

conversionEurotoDH

Request 1

getCompte

Request 1

lisComptes

Request 1

Request Properties

Property	Value
Name	Request 1
Description	
Message Size	204
Encoding	UTF-8
Endpoint	http://localhost:90...
Timeout	

Request 1

http://localhost:9090/

<?xml version='1.0' encoding='UTF-8'>
<soapenv:Envelope xmlns:soapenv='http://schemas.xmlsoap.org/soap/envelope/'>
 <soapenv:Header/>
 <soapenv:Body/>
 <ws:lisComptes/>
 </soapenv:Body/>
</soapenv:Envelope></div><div><div><?xml version='1.0' encoding='UTF-8'>
<S:Envelope xmlns:S='http://schemas.xmlsoap.org/soap/envelope/'>
 <S:Body/>
 <ns2:lisComptesResponse xmlns:ns2='http://ws/'>
 <return/>
 <code>1</code>
 <dataCreation>2024-06-14T12:58:43.420+01:00</dataCreation>
 <solde>58020.16100948731</solde>
 </return>
 <return/>
 <code>2</code>
 <dataCreation>2024-06-14T12:58:43.420+01:00</dataCreation>
 <solde>25257.31040048685</solde>
 </return>
 <return/>
 <code>3</code>
 <dataCreation>2024-06-14T12:58:43.420+01:00</dataCreation>
 <solde>32119.573674885803</solde>
 </return>
</ns2:lisComptesResponse>
</S:Body>
</S:Envelope></div></div><div>response time: 8ms (568 bytes)</div><div>SoapUI Start Page</div></div></div>

5. Créer un Client SOAP Java

La Création de module Client-soap-java :

ws-soap Client-soap-java src main java org example clientsoapjava ClientSoapJavaApplication

Project

ws-soap

.idea

.mvn

Client-soap-java

.mvn

src

main

java

org.example.clientsoapjava

ClientSoapJavaApplication

proxy

resources

test

target

.gitignore

HELP.md

mvnw

mvnw.cmd

pom.xml

src

target

.gitignore

HELP.md

mvnw

mvnw.cmd

pom.xml

External Libraries

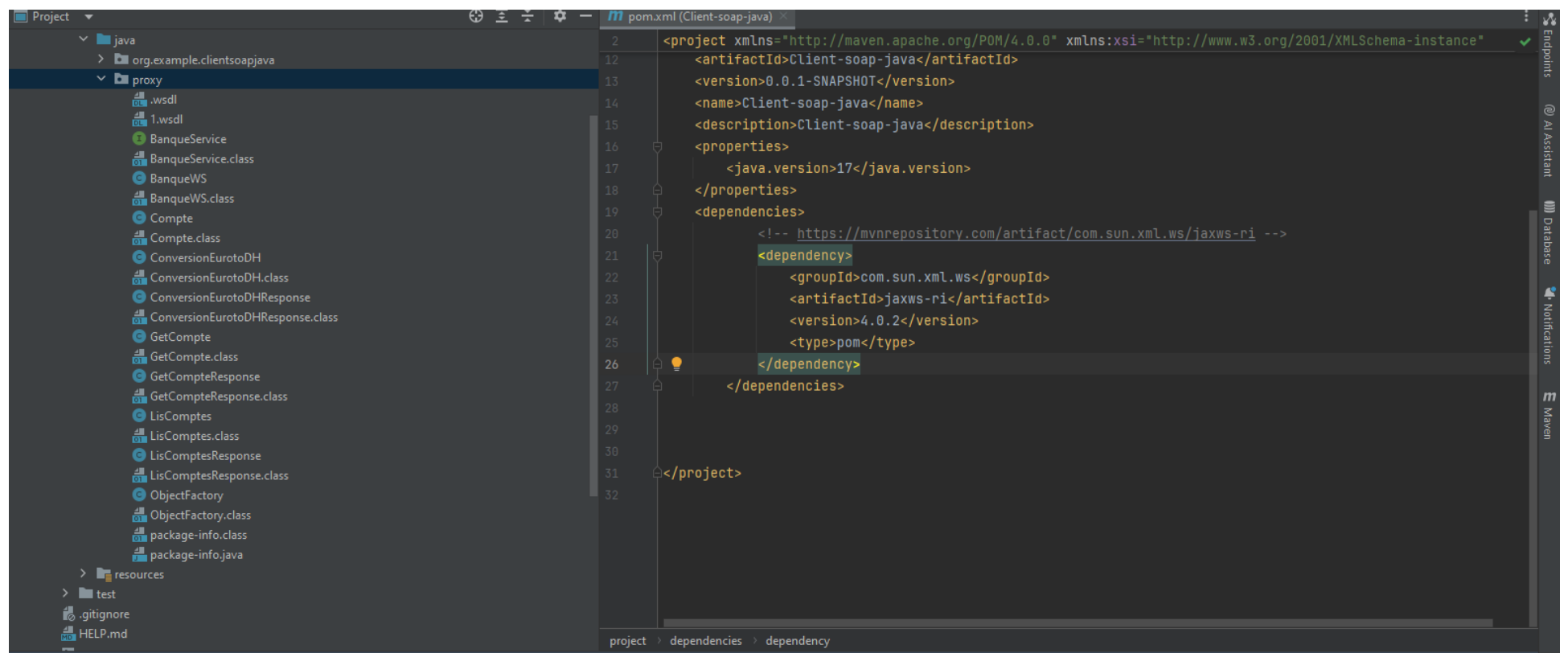
Scratches and Consoles

pom.xml (Client-soap-java)

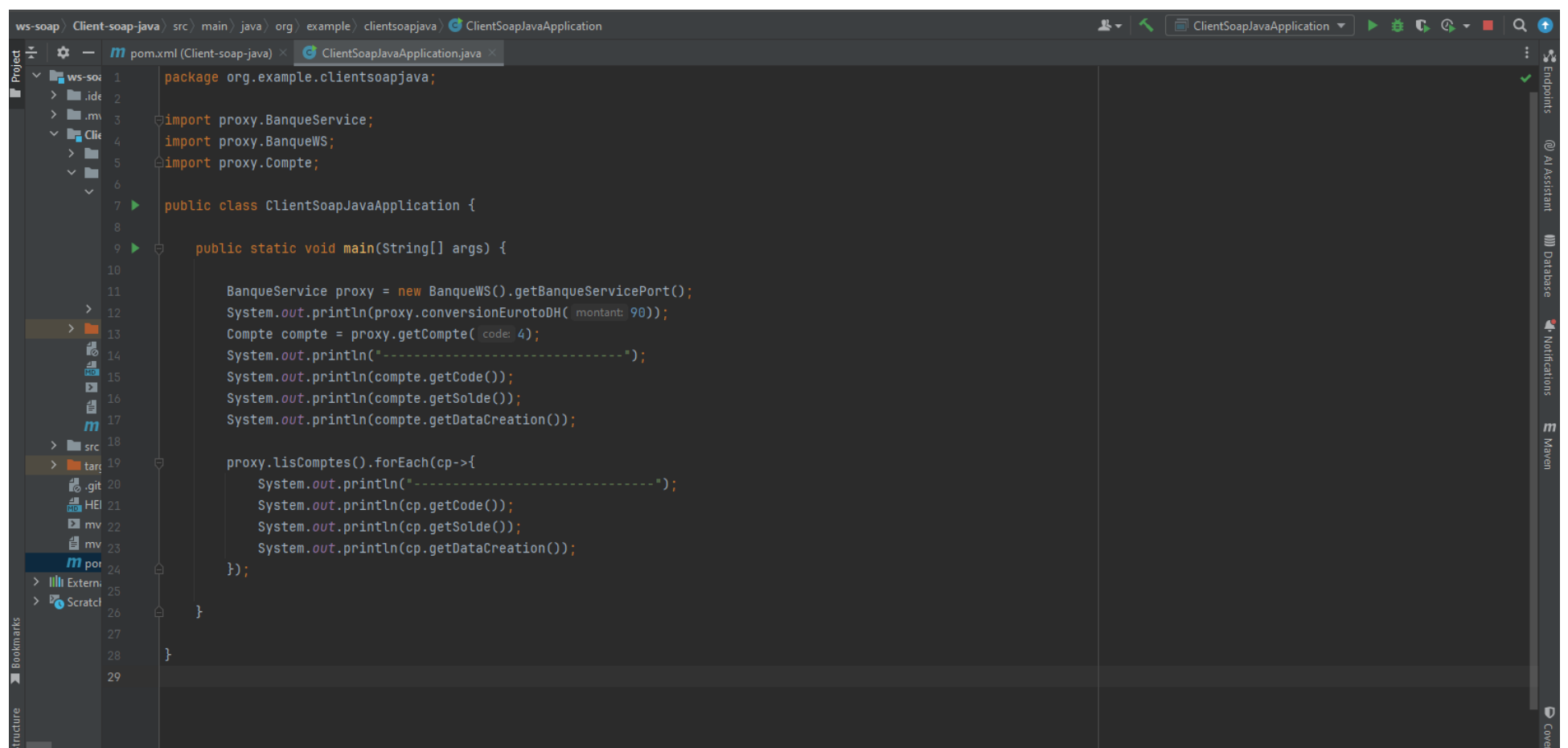
<?xml version='1.0' encoding='UTF-8'>
<project xmlns='http://maven.apache.org/POM/4.0.0' xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'>
 <parent/>
</parent>
 <groupId>org.example</groupId>
 <artifactId>Client-soap-java</artifactId>
 <version>0.0.1-SNAPSHOT</version>
 <name>Client-soap-java</name>
 <description>Client-soap-java</description>
 <properties>
 <java.version>17</java.version>
 </properties>
 <dependencies>
 <!-- https://mvnrepository.com/artifact/com.sun.xml.ws/jaxws-ri -->
 <dependency>
 <groupId>com.sun.xml.ws</groupId>
 <artifactId>jaxws-ri</artifactId>
 <version>4.0.2</version>
 <type>pom</type>
 </dependency>
 </dependencies>
</project></div></div><div>project dependencies</div></div>

9

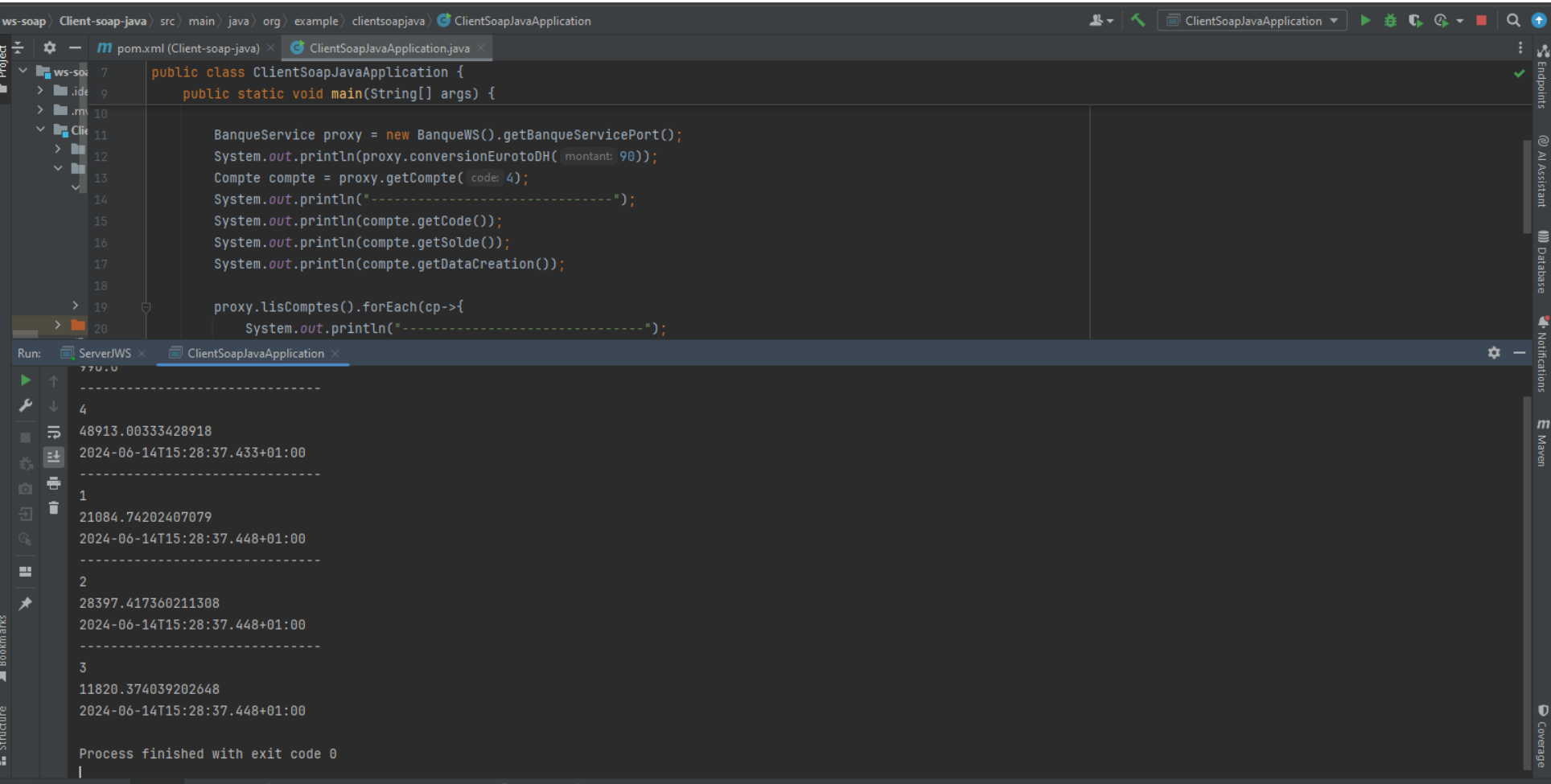
- Générer le Stub à partir du WSDL



- Créer un client SOAP pour le web service



On exécute notre code on aura :



The screenshot shows an IDE with a Java project named 'ws-soap'. The main editor displays the file 'ClientSoapJavaApplication.java' with the following code:

```
public class ClientSoapJavaApplication {  
    public static void main(String[] args) {  
  
        BanqueService proxy = new BanqueWS().getBanqueServicePort();  
        System.out.println(proxy.conversionEurotoDH( montant: 90));  
        Compte compte = proxy.getCompte( code: 4);  
        System.out.println("-----");  
        System.out.println(compte.getCode());  
        System.out.println(compte.getSolde());  
        System.out.println(compte.getDataCreation());  
  
        proxy.lisComptes().forEach(cp->{  
            System.out.println("-----");  
        });  
    }  
}
```

The 'Run' console at the bottom shows the output of the program:

```
-----  
4  
48913.00333428918  
2024-06-14T15:28:37.433+01:00  
-----  
1  
21084.74202407079  
2024-06-14T15:28:37.448+01:00  
-----  
2  
28397.417360211308  
2024-06-14T15:28:37.448+01:00  
-----  
3  
11820.374039202648  
2024-06-14T15:28:37.448+01:00  
-----  
Process finished with exit code 0  
|
```