



Institute of
Computer
Technology

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Batch:51

PRACTICAL 01

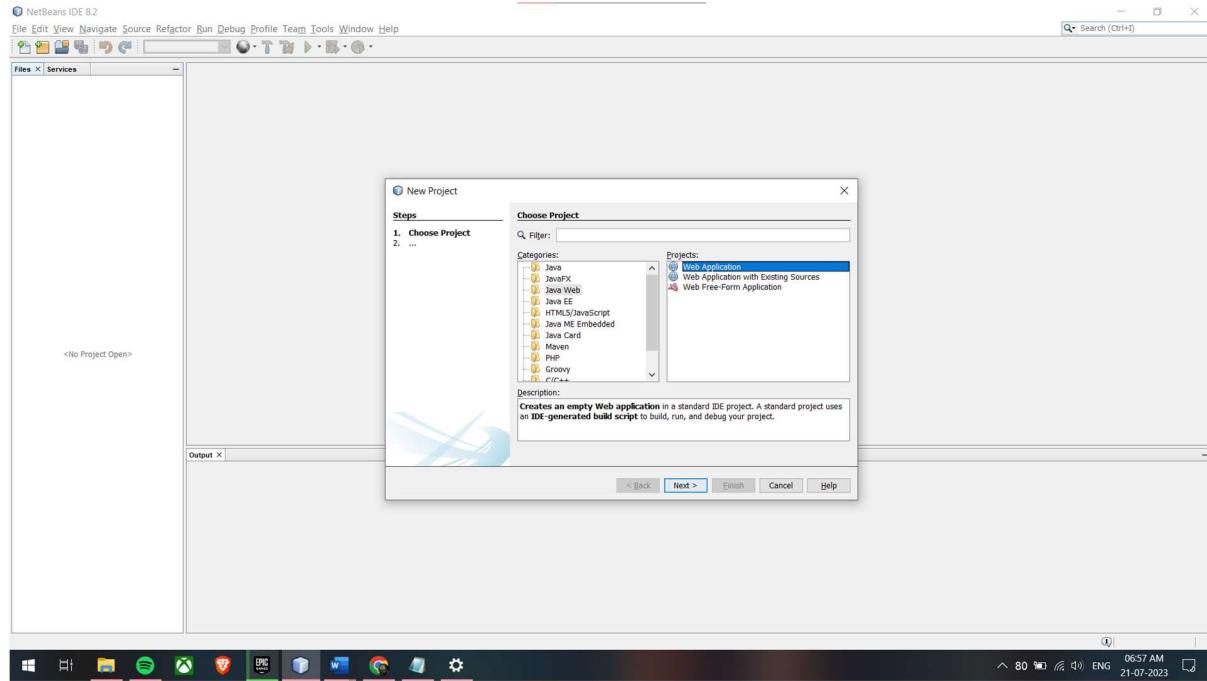
❖ Question (TASK) :

There Implement an application of web service using JAX-RPC in JAVA.

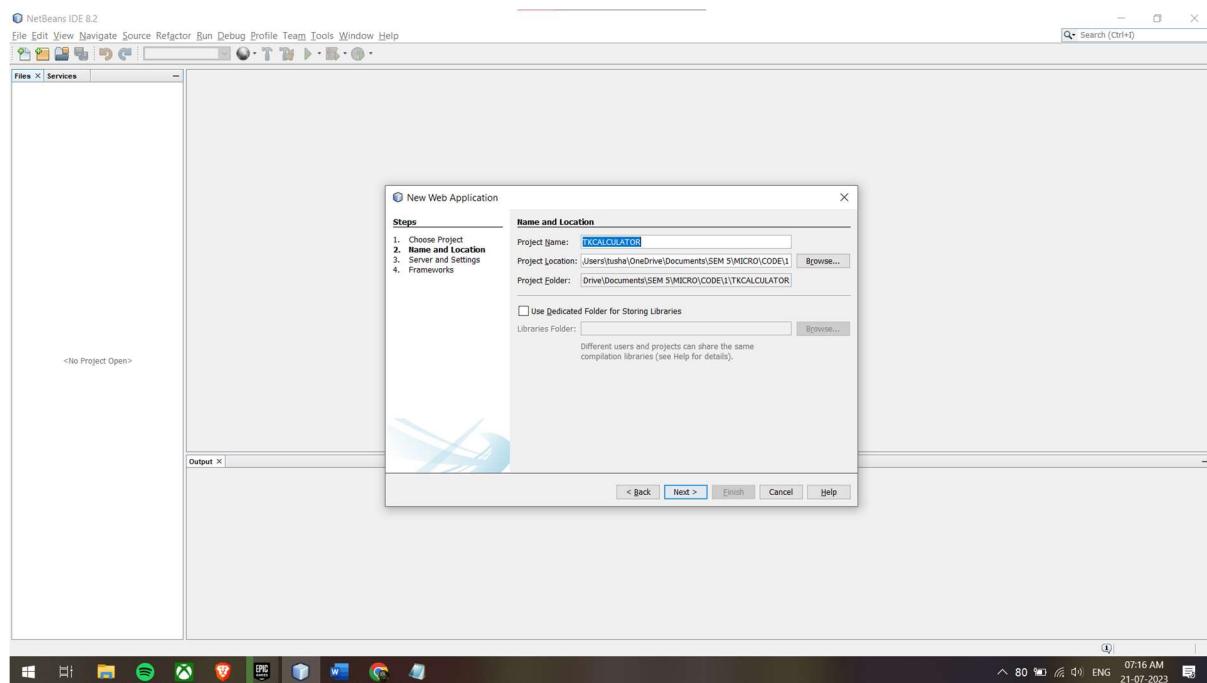
A shop owner wants to make an arithmetic calculator using JAX-RPC and wants to acquire that service as a java client. Help them to make this service.

❖ STEPS TO PERFORM THIS TASK :

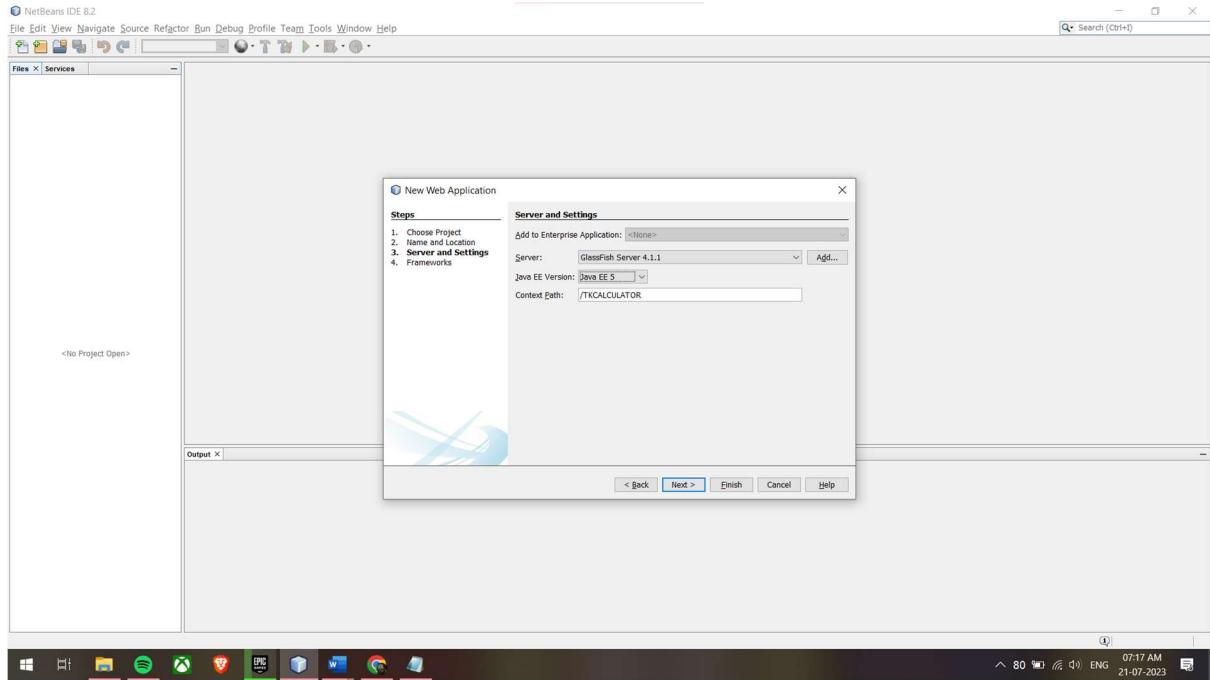
- » Open Netbeans 8.2
- » create new project file from file option , First choose Java Web from categories and web application from projects



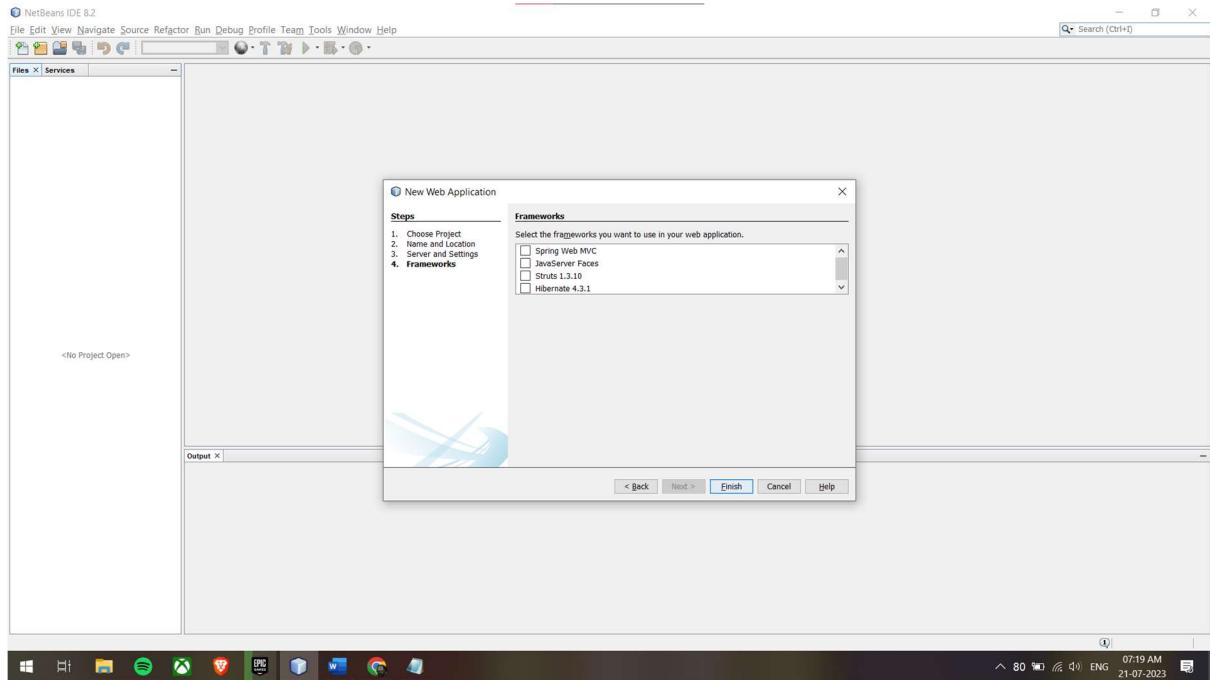
» Name it Math Calculator



➤ Select Glassfish Server and Java EE 5 Version

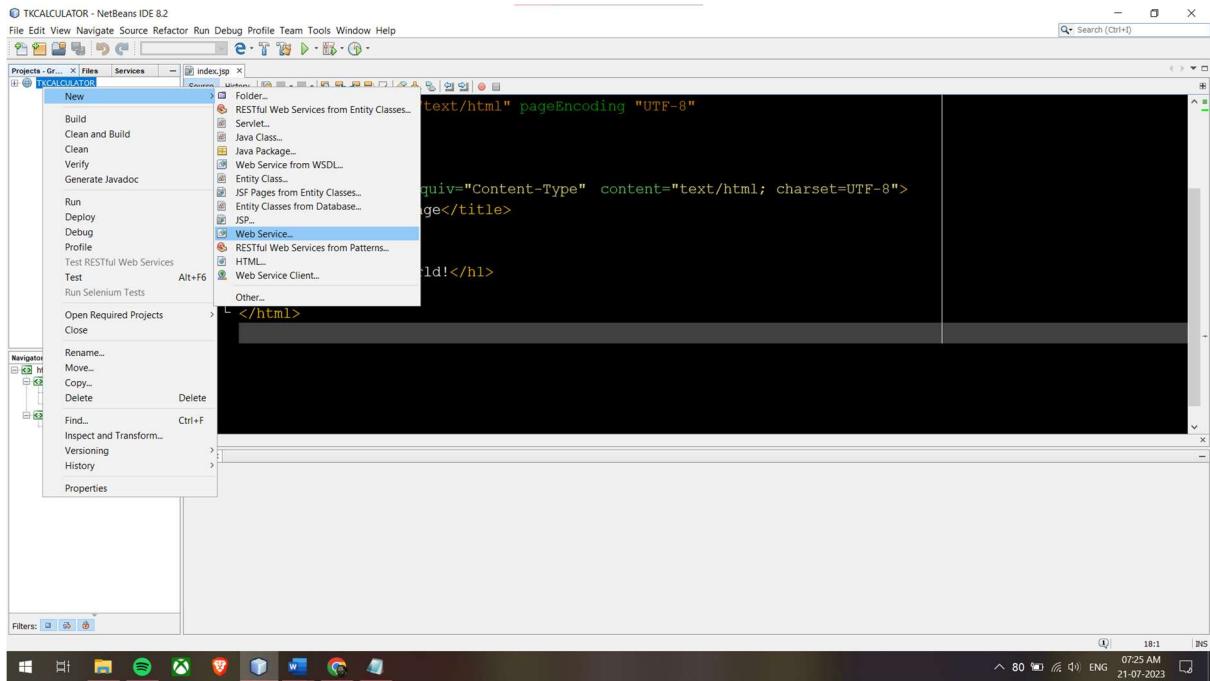


➤ Don't check on any Frameworks make it clear

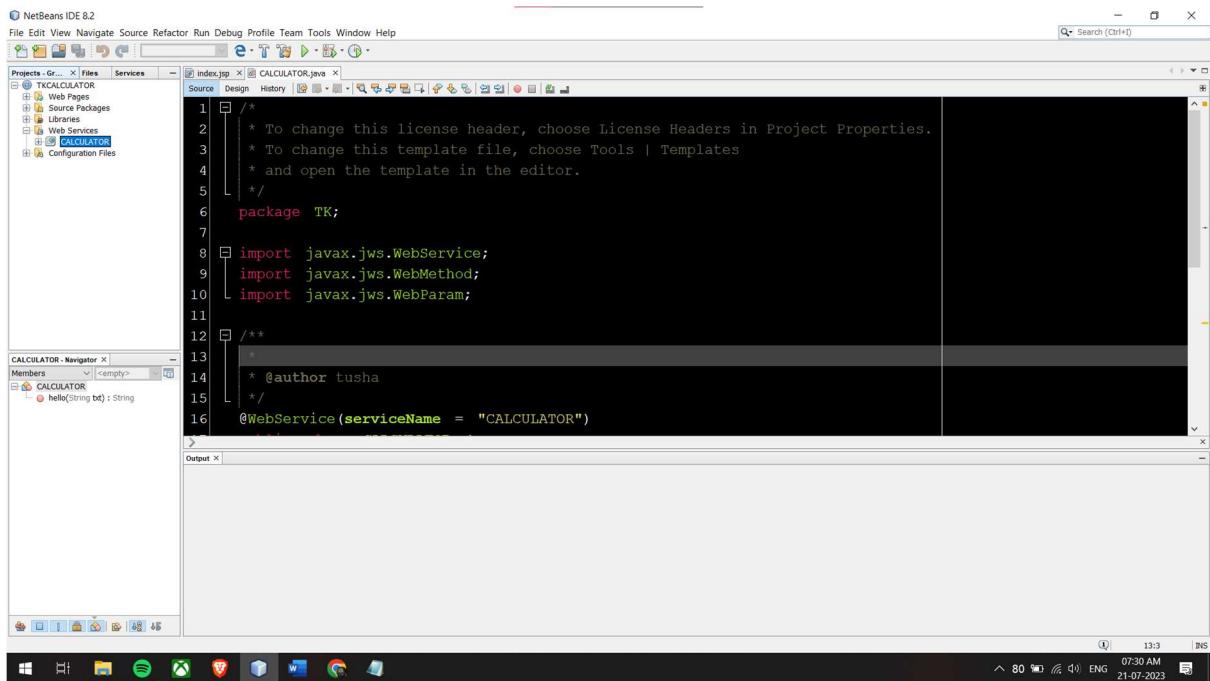


➤ After this click on finish and project will be created.

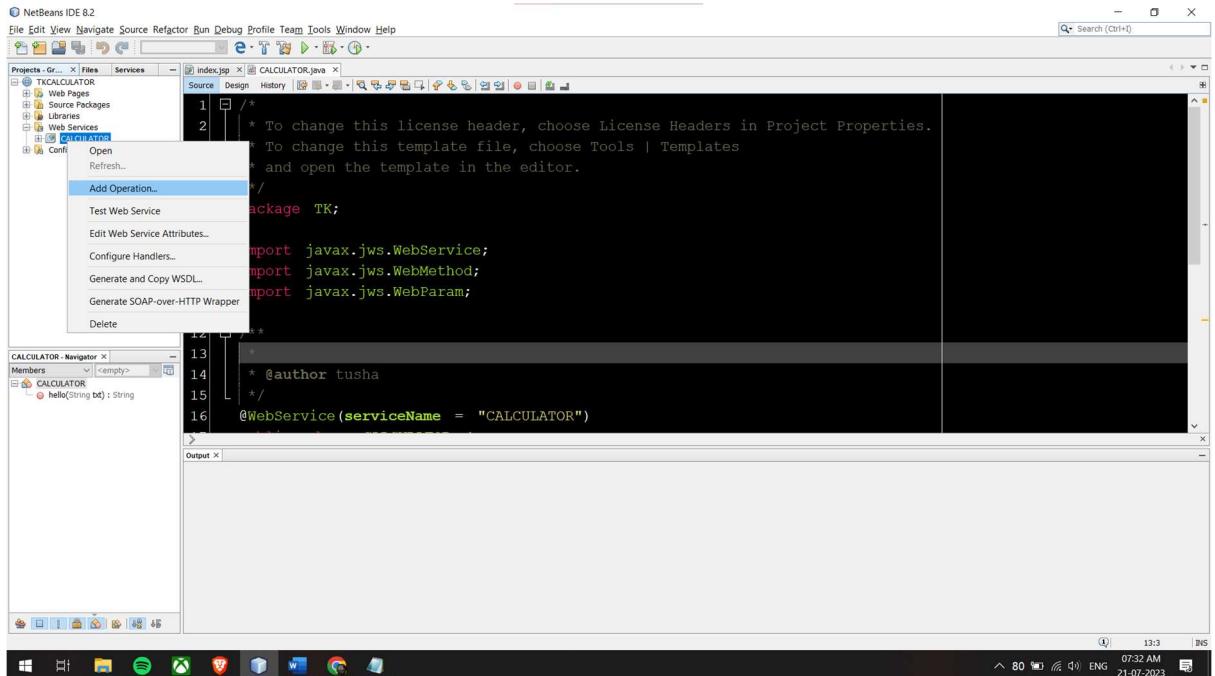
- » Right click on MYCALCULATOR project you created and select new-web service



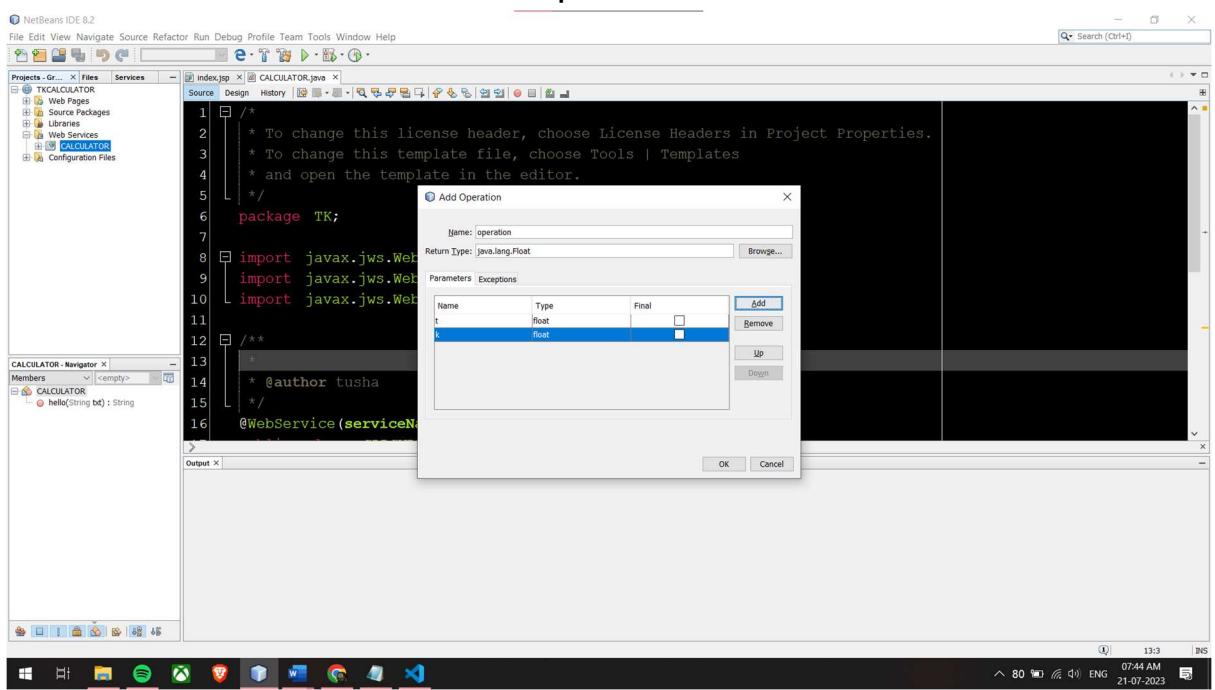
- » Name it CALCULATOR & in Package name you can name it anything you want I name it TK.
- » Now click on finish and you can see your created webservice under service directory of your project.



- » Right click on web service you created & select add operations.



- » Type Addition in operation name and select return type and type **java.lang.Float** under Parameters select Add and name it anything you want I name it **t, k** and change type from **java.lang.String** to **Float** only & don't check on final checkbox click on ok to add operations.



- » Do this add operation same for Subtraction , Multiplication , Division. And change return type of each operations.

Like this :

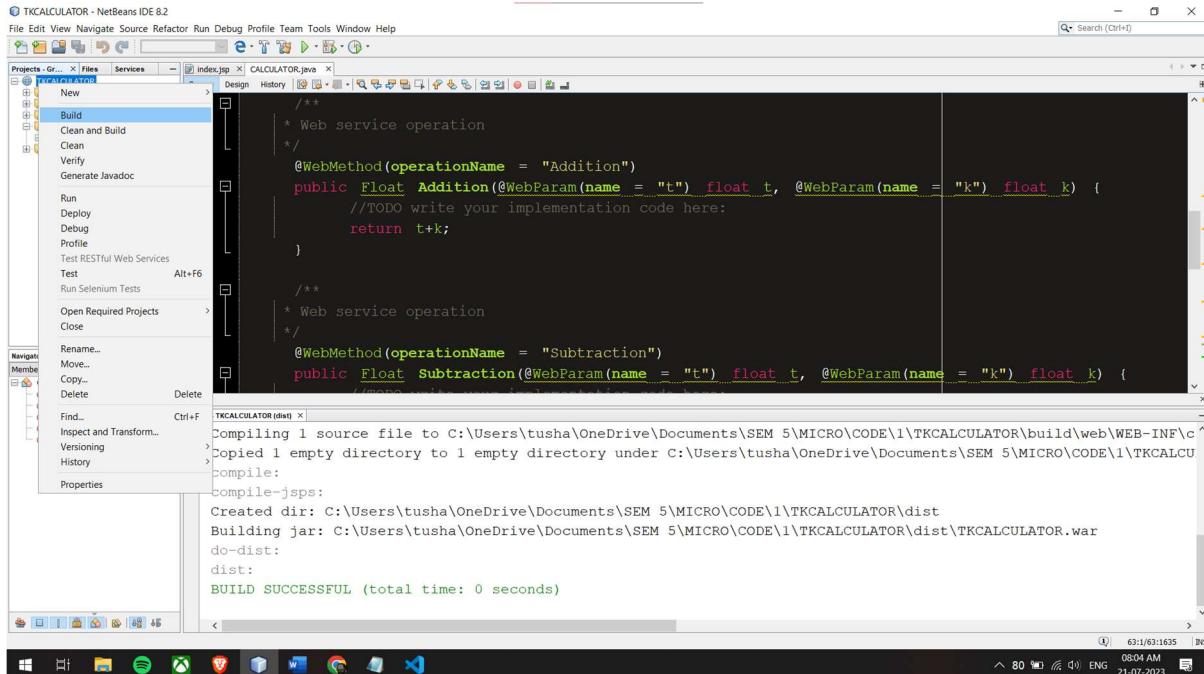
```
Addition - return t+k
Subtraction - return t-k
Multiplication - return t*k
Division - return t*k
```

```

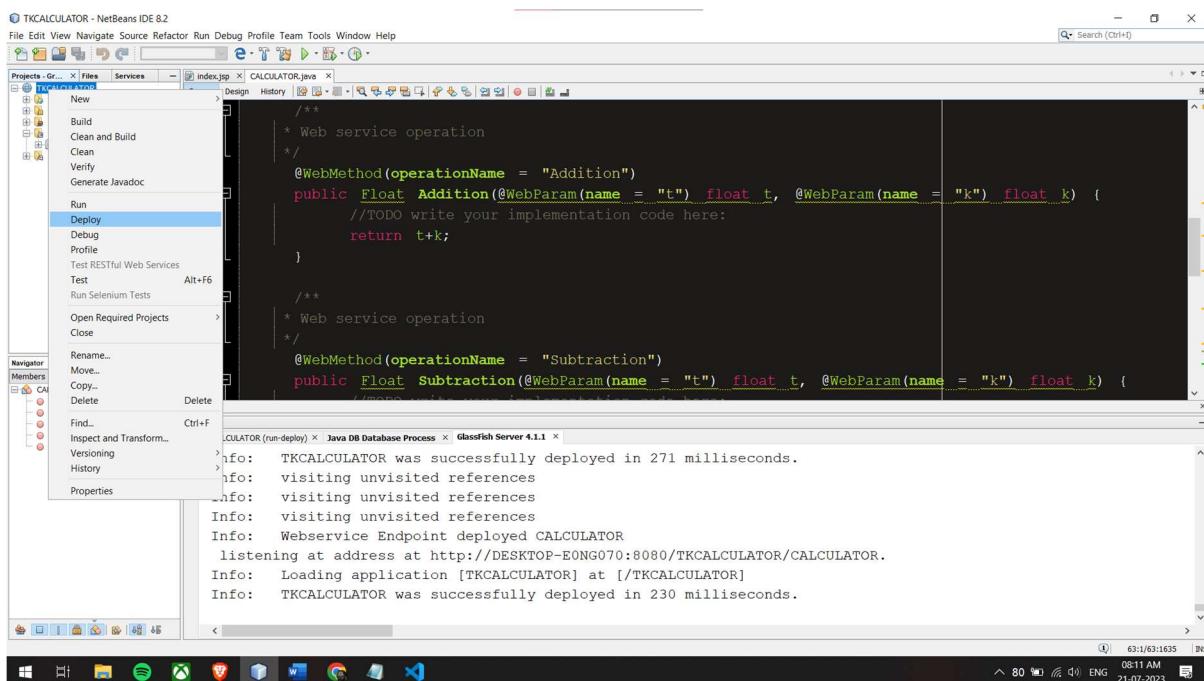
TKCALCULATOR - NetBeans IDE 8.2
File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
index.jsp x CALCULATOR.java x
Source Design History
Projects - Gr... Files Services
TKCALCULATOR
  Web Pages
  Source Packages
  Libraries
  Services
    CALCULATOR
  Configuration Files
Search (Ctrl+F)
index.jsp x CALCULATOR.java x
Source Design History
29  /*
30   * @WebMethod(operationName = "Addition")
31   */
32   public float Addition(@WebParam(name = "t") float t, @WebParam(name = "k") float k) {
33     //TODO write your implementation code here:
34     return t+k;
35   }
36   /**
37   * Web service operation
38   */
39   /*
40   * @WebMethod(operationName = "Subtraction")
41   */
42   public float Subtraction(@WebParam(name = "t") float t, @WebParam(name = "k") float k) {
43     //TODO write your implementation code here:
44     return t-k;
45   }
46   /*
47   * @WebMethod(operationName = "Multiplication")
48   */
49   /*
50   * @WebMethod(operationName = "Division")
51   */
52   /*
53   * hello(String od) : String
54   */
Output x

```

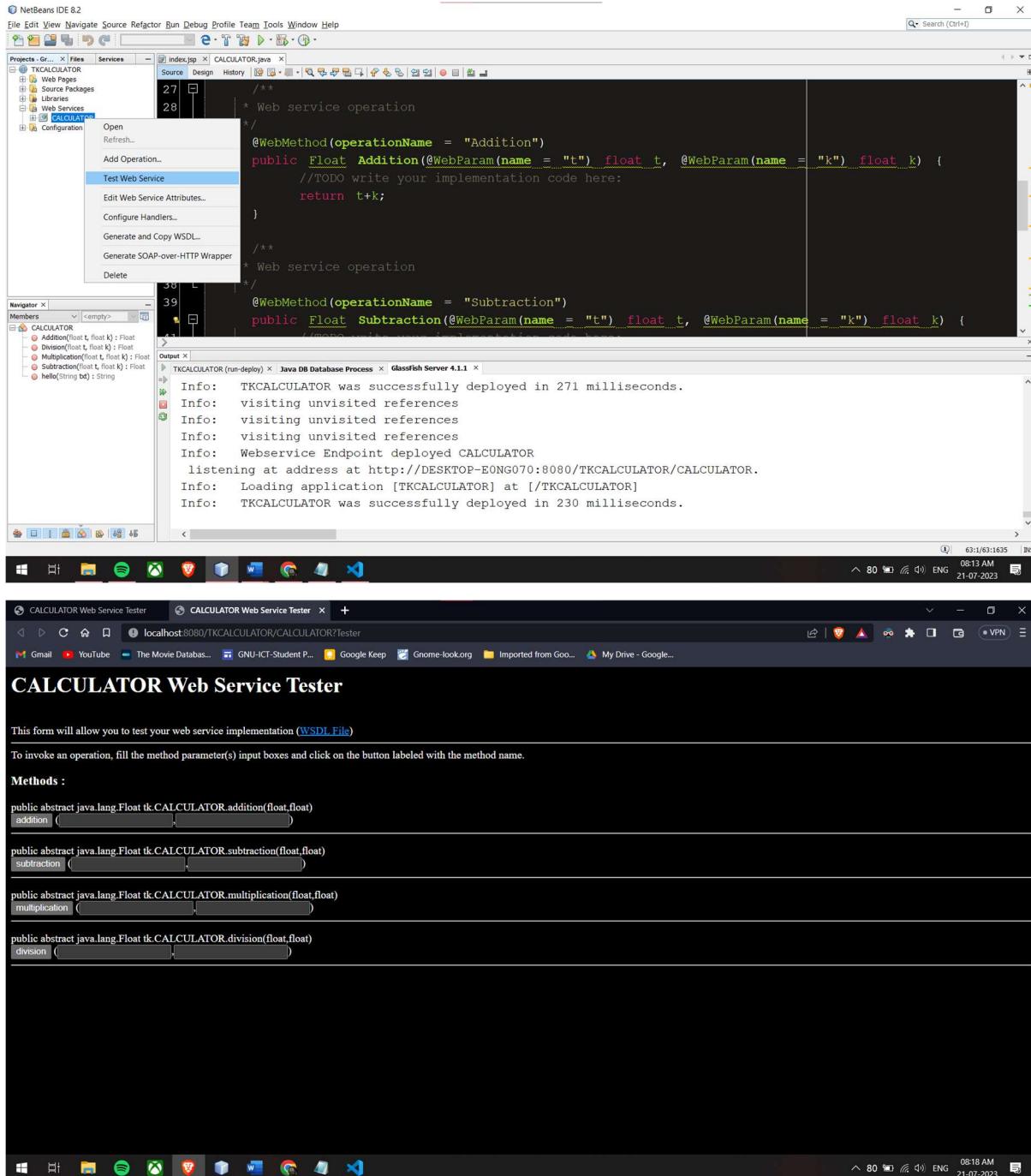
- Right click project name then select build project you will see BUILD SUCCESSFUL in output window if you perform steps correctly.



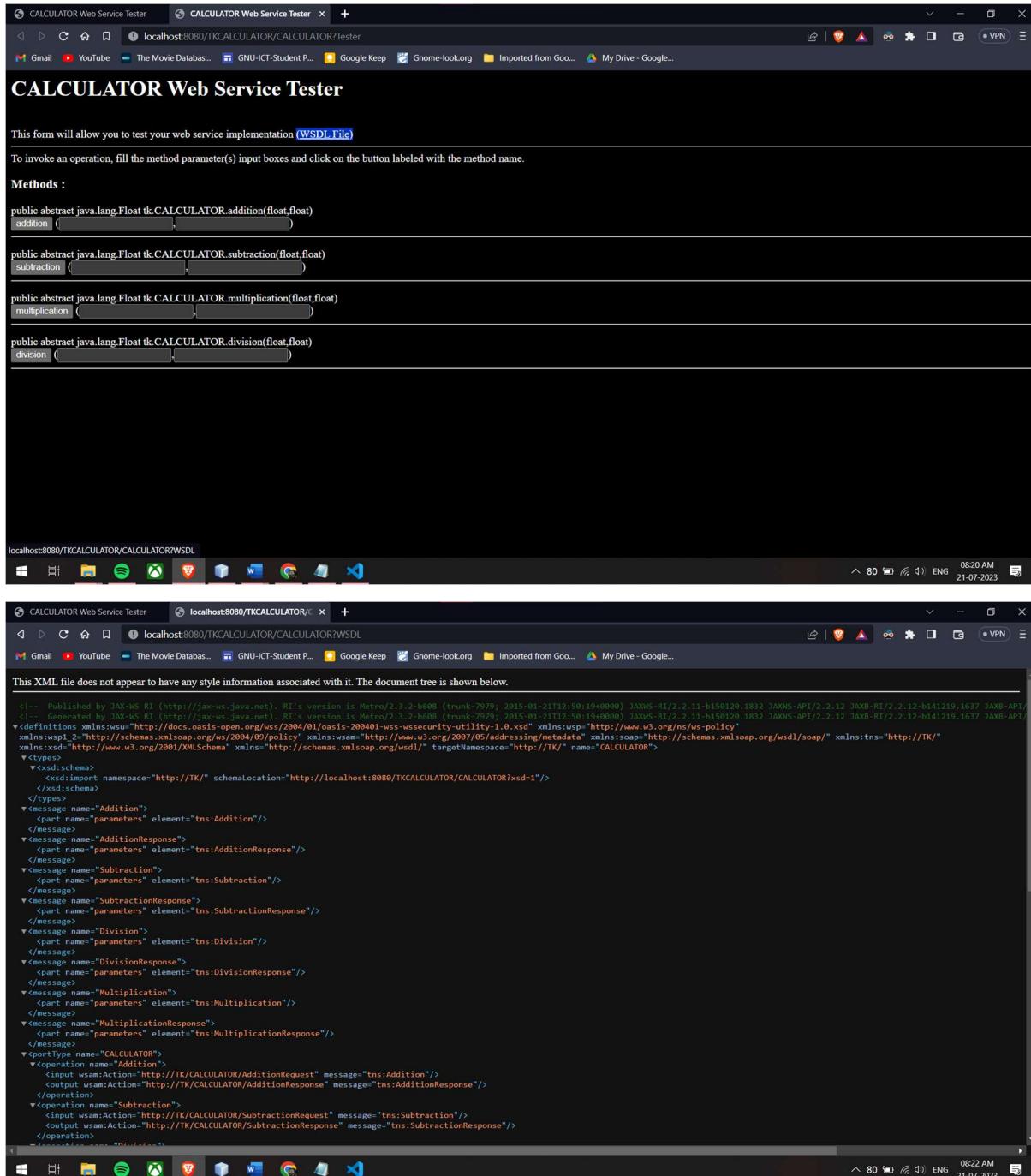
- After BUILD select Deploy option then you see your output deployed successfully.



- » Then under Web services directory right click on CALCULATOR service and hit Test service & you will see output of your web service in web browser.



Copy the WSDL File link from your web service page hit on WSDL FILE you will be redirected to WSDL FILE .



<http://localhost:8080/TKCALCULATOR/CALCULATOR?WSDL>

- » Similarly created project for Client web app. Same select as previously selected to make project like server and Java EE 5.

```

15  /*
16  * @WebService(serviceName = "CALCULATOR")
17  public class CALCULATOR {
18
19      /**
20      * This is a sample web service operation
21      */
22
23      /**
24      * Web service operation
25      */
26      @WebMethod(operationName = "Calculator")
27      public float add(@WebParam(name = "k") float k) {
        ...
    }

```

Output X

```

TKCALCULATOR (run-deploy) × Java DB Data
listening at address http://localhost:8080/TKCALCULATOR
Info: Loading application [TKCALCULATOR] at [/TKCALCULATOR]
Info: TKCALCULATOR was successfully deployed in 233 milliseconds.
Info: Invoking wsimport with http://localhost:8080/TKCALCULATOR/CALCULATOR?WSDL
Info: parsing WSDL...
Info: Generating code...
Info: Compiling code...
Info: wsimport successful

```

TK_CLIENT - NetBeans IDE 8.2

```

<%-->
Document : index
Created on : 21 Jul, 2023, 8:30:13 AM
Author : tusha
--%>

page contentType="text/html" pageEncoding="UTF-8"
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        ...
    </body>

```

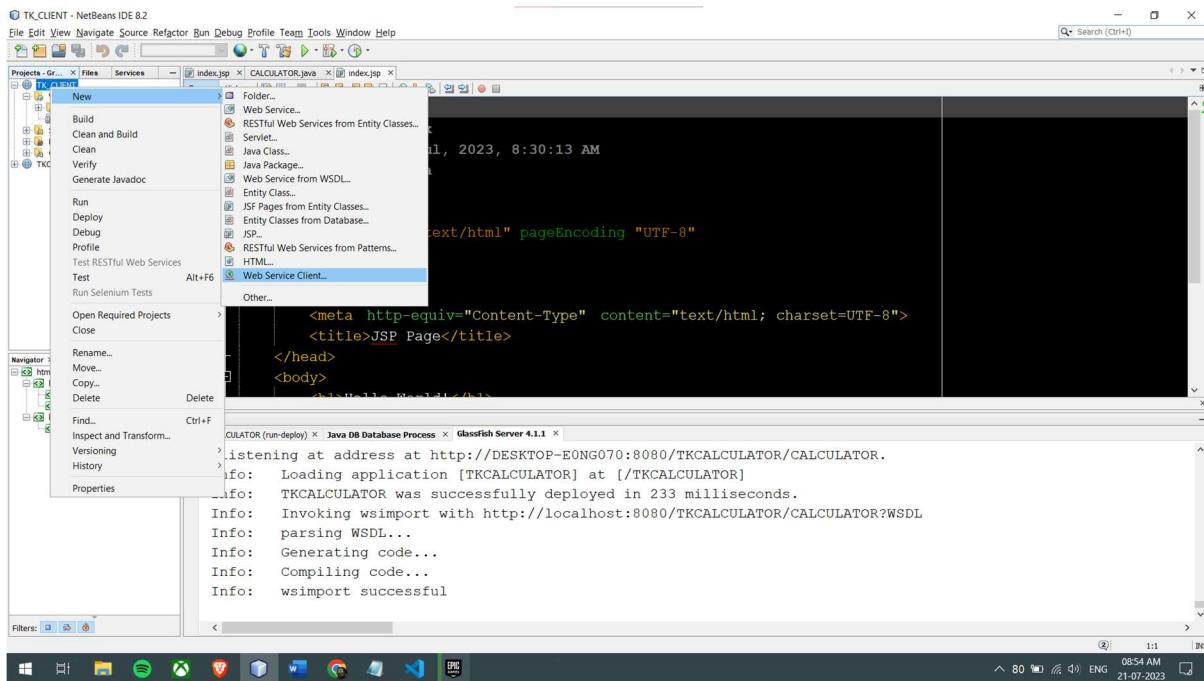
Output X

```

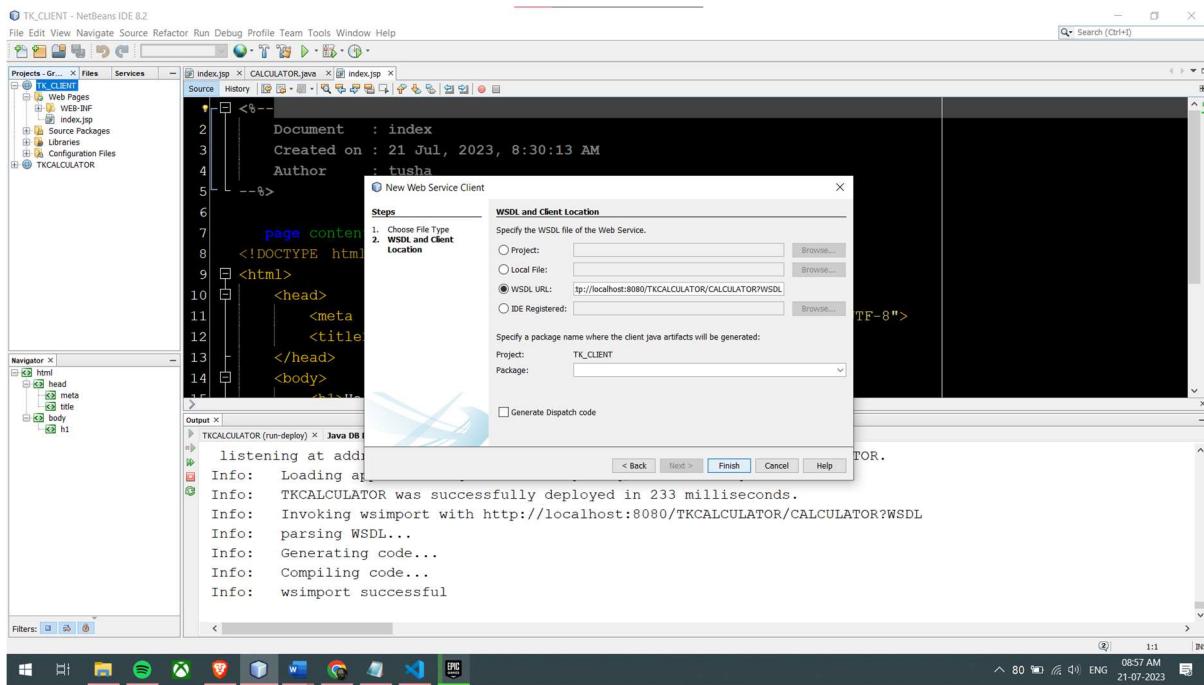
TKCALCULATOR (run-deploy) × Java DB Database Process × GlassFish Server 4.1.1 ×
listening at address at http://DESKTOP-EONG070:8080/TKCALCULATOR/CALCULATOR
Info: Loading application [TKCALCULATOR] at [/TKCALCULATOR]
Info: TKCALCULATOR was successfully deployed in 233 milliseconds.
Info: Invoking wsimport with http://localhost:8080/TKCALCULATOR/CALCULATOR?WSDL
Info: parsing WSDL...
Info: Generating code...
Info: Compiling code...
Info: wsimport successful

```

- » Right click on client service you created and create new Web Service Client.

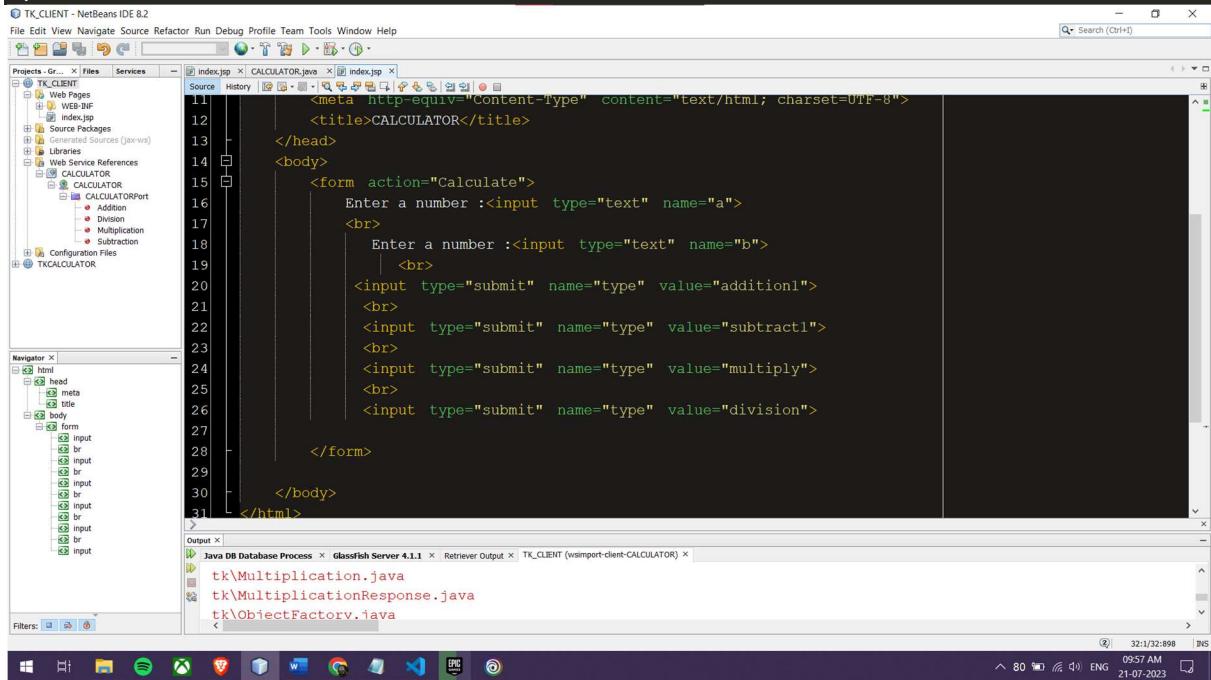


- » Paste WSDL LINK that we copied in previous steps.

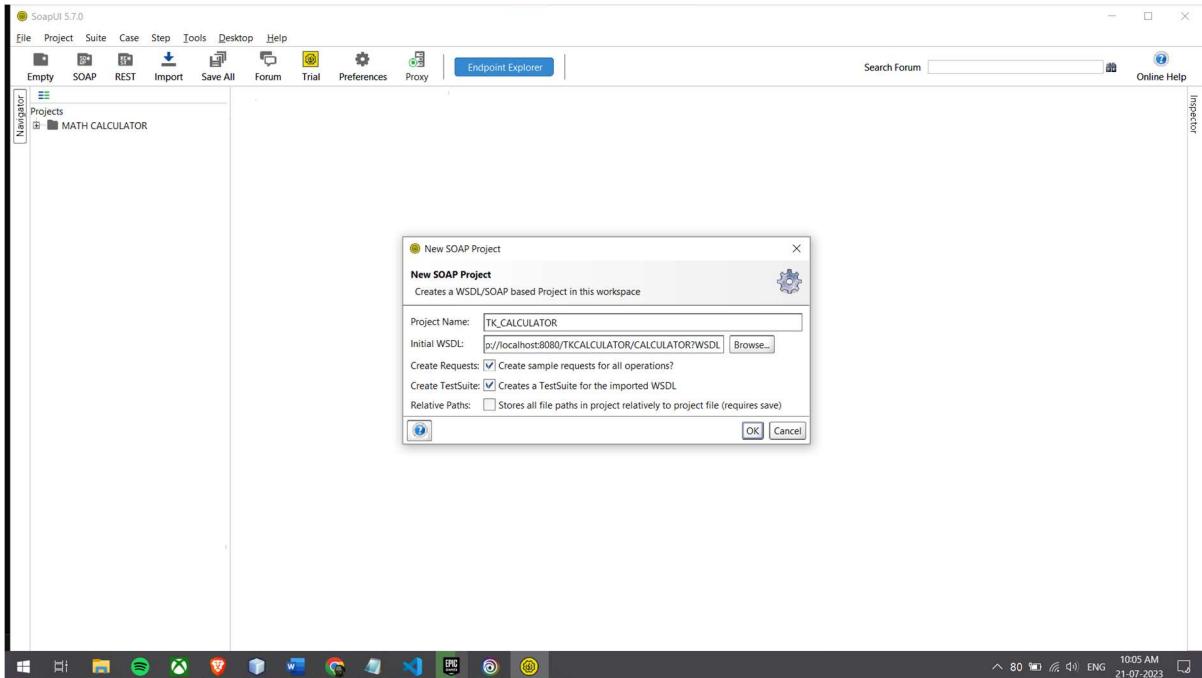


» Make Changes in JSP file in CLIENT Web Service :

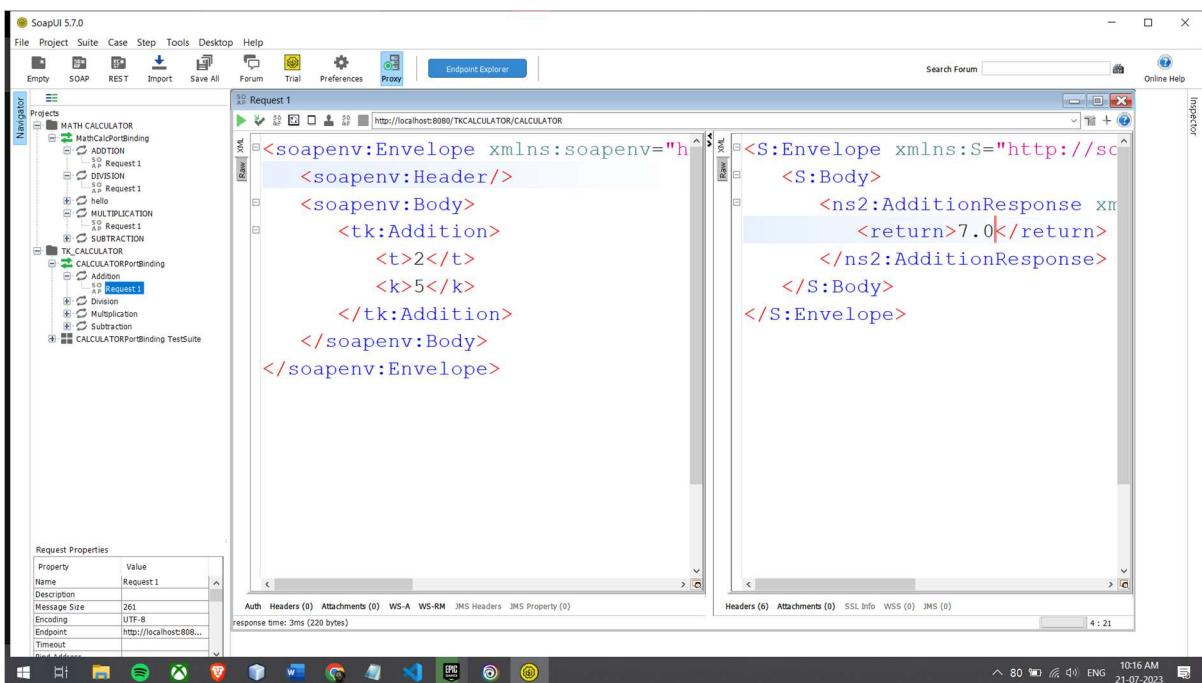
```
<form action="Calculate">
    Enter a number :<input type="text" name="a">
    <br>
    Enter a number :<input type="text" name="b">
    <br>
    <input type="submit" name="type" value="addition1">
    <br>
    <input type="submit" name="type" value="subtract1">
    <br>
    <input type="submit" name="type" value="multiply">
    <br>
    <input type="submit" name="type" value="division">
</form>
```



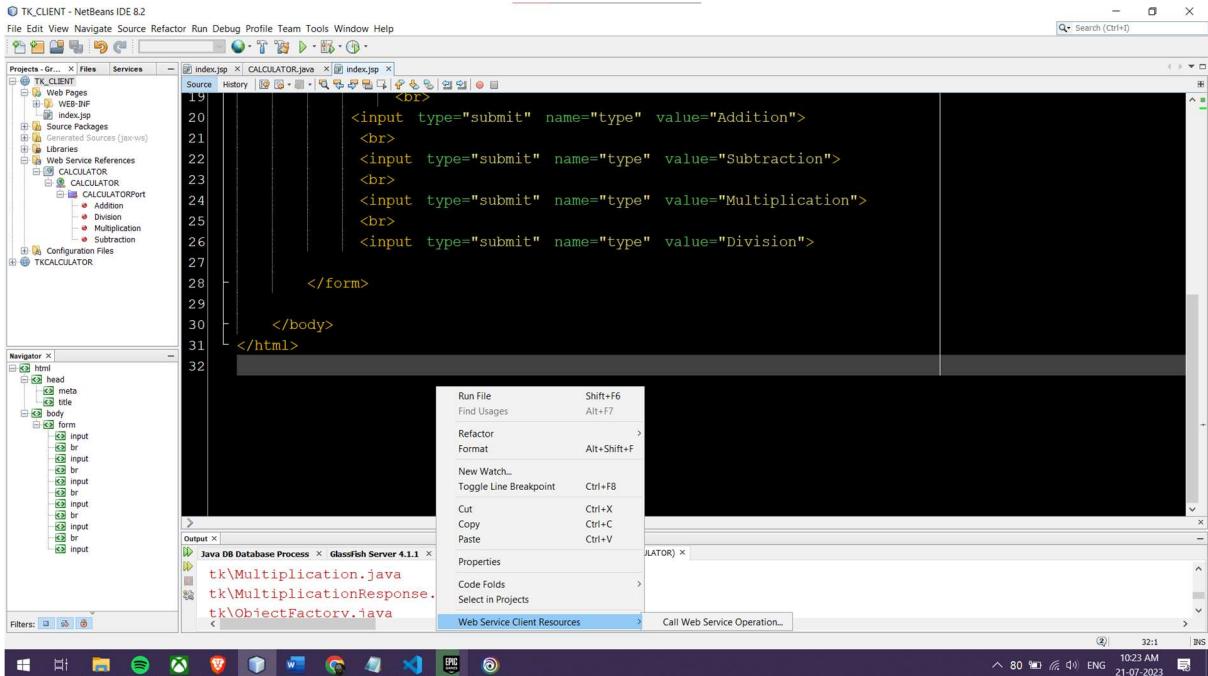
- » Now we are going to check whether our WSDL FILE is working or not so we can implement our CALCULATOR service in Web Client Service .
- » Open SOAP UI & hit a SOAP create new project type name and initial your WSDL FILE link :



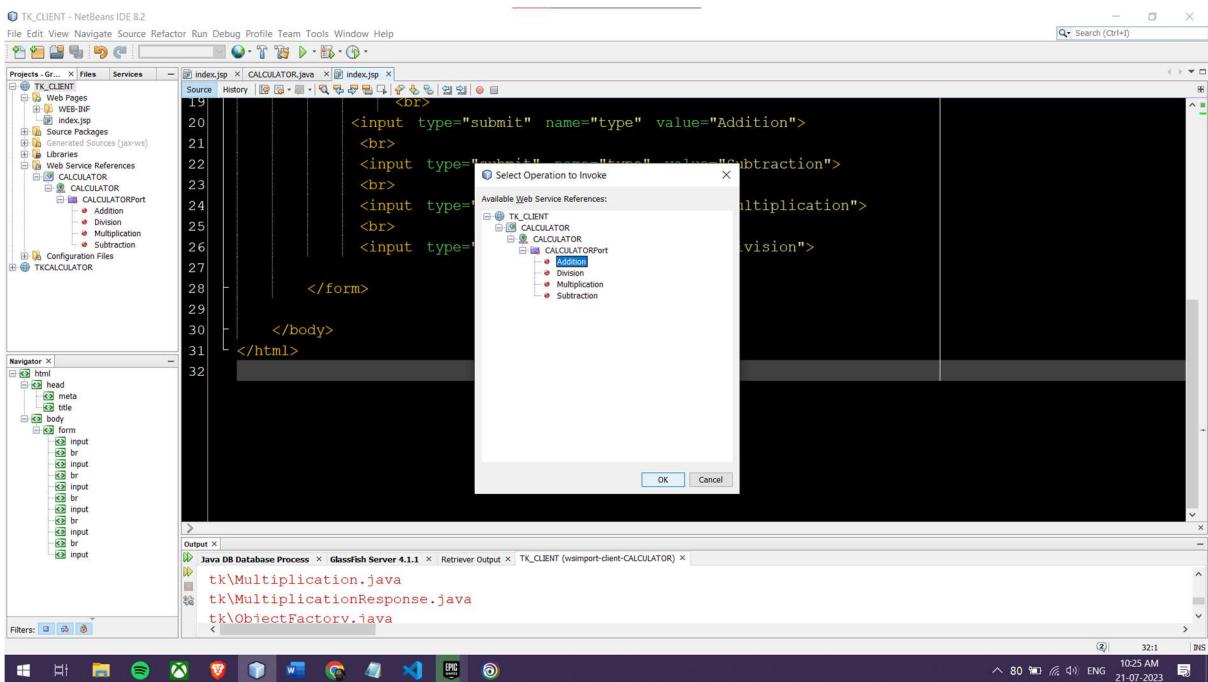
- » You can see in the Output that this WSDL is working .



- » Right click on blank space of code in JSP file of Client Service and hit Web Service Client Resources then hit call Web Service Operation



- » Choose the Addition Operation & Do required changes .



- » Do changes in addition operation that we called from WSDL

FILE :

- » Changes In Addition Method :

```

String t=request.getParameter("t");
String k=request.getParameter("k");
String add=request.getParameter("type");
Float tt=Float.parseFloat(t);
Float kk=Float.parseFloat(k);
if(add.equals("Addition"))
{
    // TODO process result here
    java.lang.Float result = port.Addition(tt, kk);
    out.println("Result = "+result);
}

```

- » Changes In Subtraction Method :

```

String t=request.getParameter("t");
String k=request.getParameter("k");
String add=request.getParameter("type");
Float tt=Float.parseFloat(t);
Float kk=Float.parseFloat(k);
if(add.equals("Division"))
{
    // TODO process result here
    java.lang.Float result = port.division(tt, kk);
    out.println("Result = "+result);
}

```

- » Similarly do changes in Multiplication and Subtraction Method.

TK_CLIENT - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects - TK_CLIENT Services - index.jsp x CALCULATOR.java x index.jsp x

```

51 <%-- start web service invocation --%><hr/>
52 <%
53 try {
54     tk.CALCULATOR_Service service = new tk.CALCULATOR_Service();
55     tk.CALCULATOR port = service.getCALCULATORPort();
56     // TODO initialize WS operation arguments here
57     String t=request.getParameter("t");
58     String k=request.getParameter("k");
59     String add=request.getParameter("type");
60     Float tt=Float.parseFloat(t);
61     Float kk=Float.parseFloat(k);
62     if(add.equals("Division"))
63     {
64         // TODO process result here
65         java.lang.Float result = port.division(tt, kk);
66         out.println("Result = "+result);
67     }
68 } catch (Exception ex) {
69     // TODO handle custom exceptions here
70 }

```

index.jsp

Output x

Java DB Database Process x GlassFish Server 4.1.1 x TK_CLIENT (run) x

run:

BUILD SUCCESSFUL (total time: 0 seconds)

57:10/11:35 11:08 AM 21-07-2023

» Let's Run Our Project :

TK_CLIENT - NetBeans IDE 8.2

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help

Projects - TK_CLIENT Services - index.jsp x CALCULATOR.java x index.jsp x

```

51 <%-- start web service invocation --%><hr/>
52 <%
53 try {
54     tk.CALCULATOR_Service service = new tk.CALCULATOR_Service();
55     tk.CALCULATOR port = service.getCALCULATORPort();
56     // TODO initialize WS operation arguments here
57     String t=request.getParameter("t");
58     String k=request.getParameter("k");
59     String add=request.getParameter("type");
60     Float tt=Float.parseFloat(t);
61     Float kk=Float.parseFloat(k);
62     if(add.equals("Division"))
63     {
64         // TODO process result here
65         java.lang.Float result = port.division(tt, kk);
66         out.println("Result = "+result);
67     }

```

index.jsp

Output x

Java DB Database Process x GlassFish Server 4.1.1 x TK_CLIENT (run) x

run-deploy:

Browsing: http://localhost:8080/TK_CLIENT

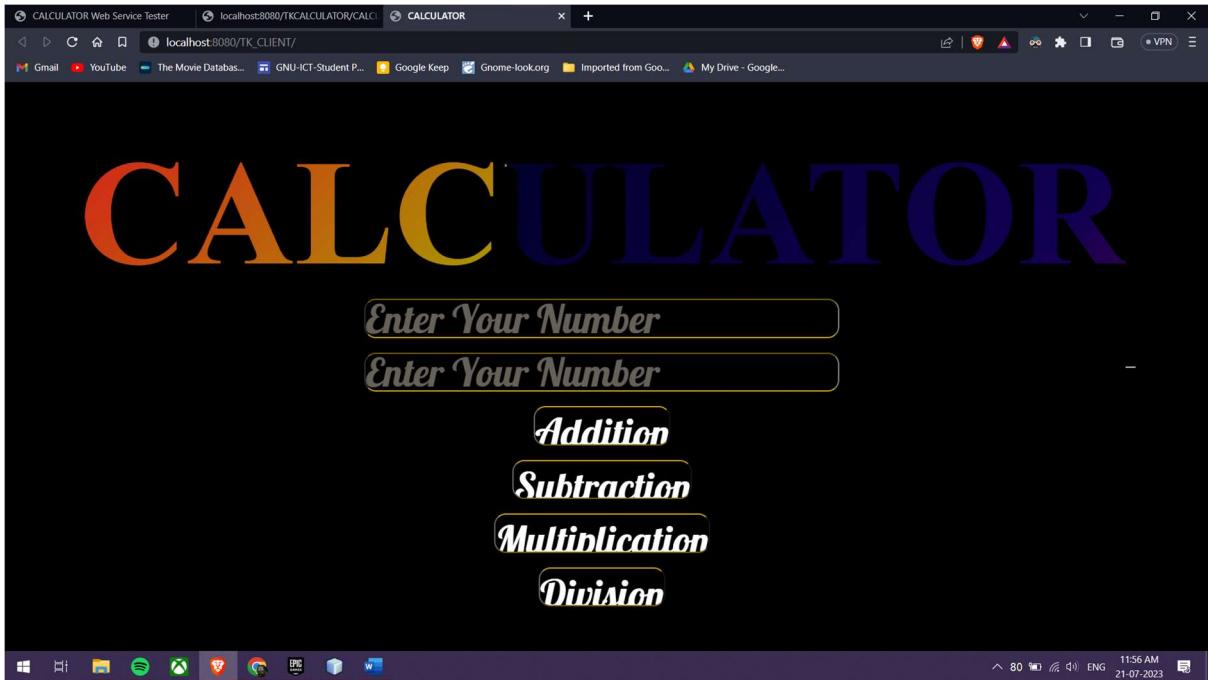
run-display-browser:

run:

BUILD SUCCESSFUL (total time: 0 seconds)

64:32 64:32 11:09 AM 21-07-2023

Final Web Service Output :



Testing addition operation :

