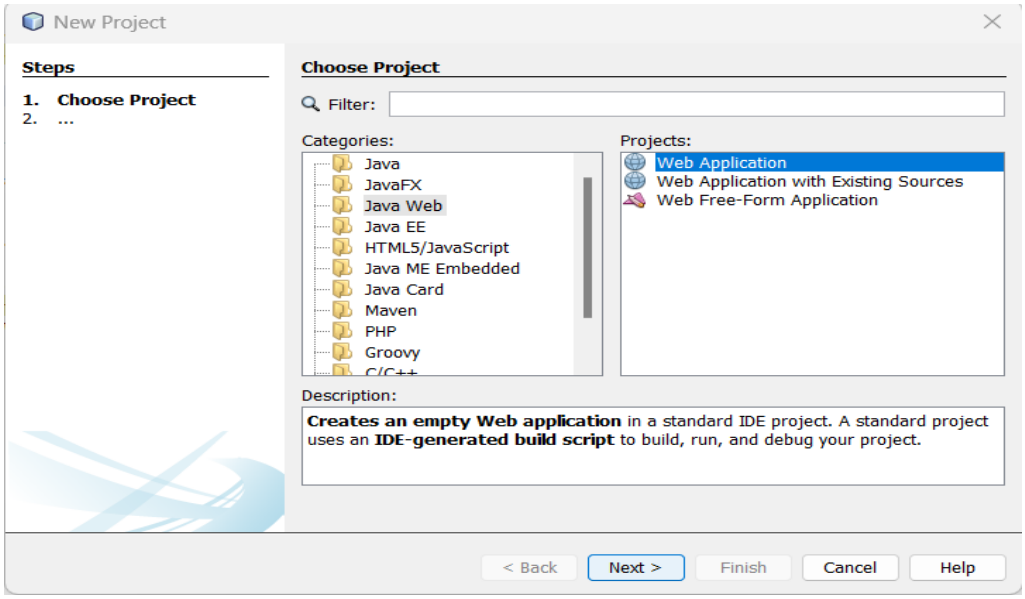
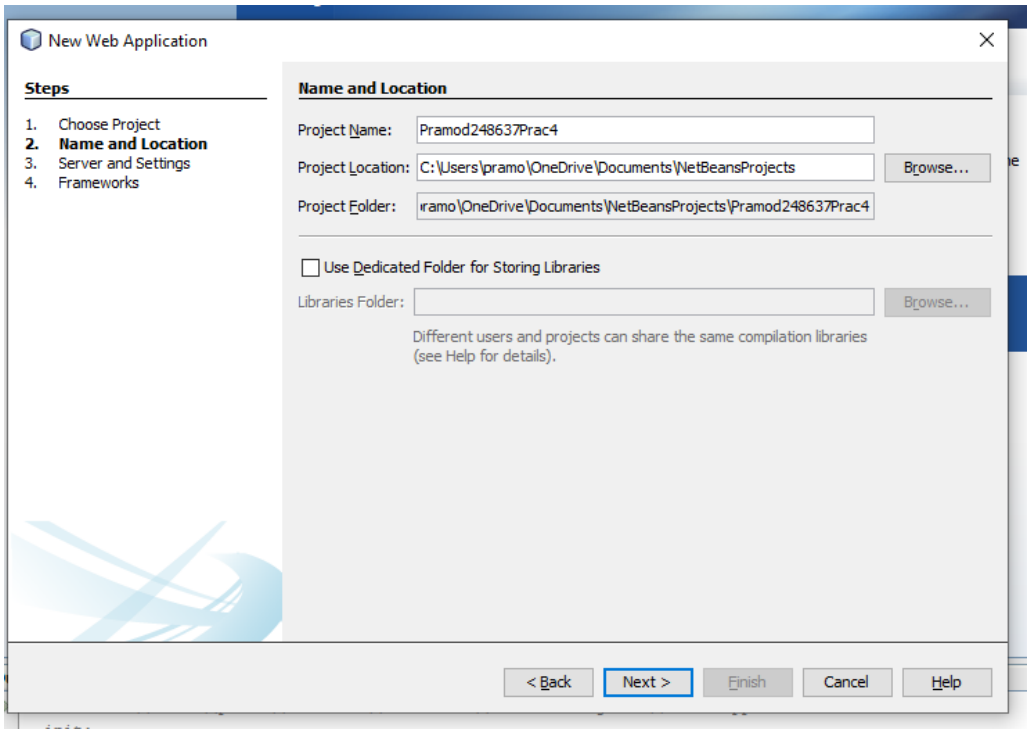
PRACTICAL 4

Aim: Show the implementation of web services.

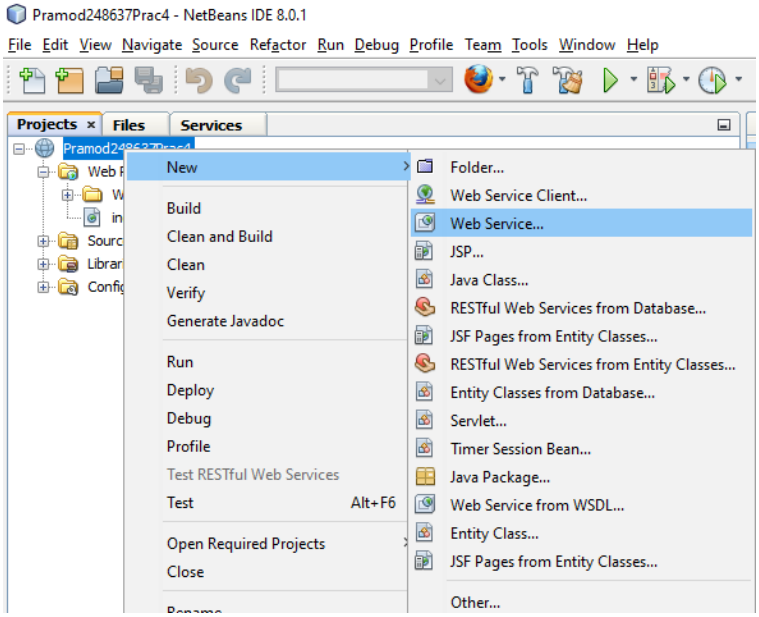
Q1. Write a JAX-WS web service to perform the following operations. Define a Servlet / JSP that consumes the web service.

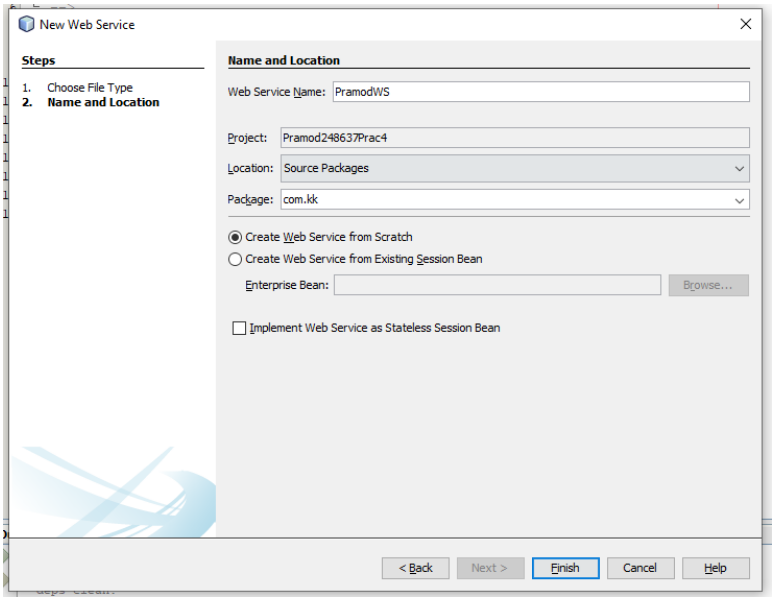
Step 1: Create a new project. Click on web application → Name of project → Next → Finish.





Step 2: Once your project is successfully created. Expand your project, right click on project. Select New → Web Service. Enter the name of new Web Service as operation & package name as com.kk. Click on Finish options.

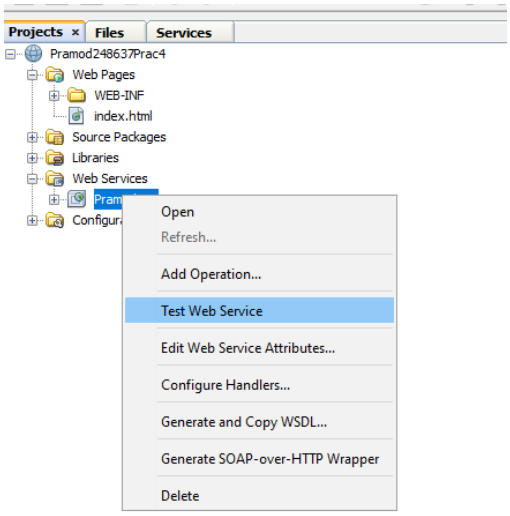




Step 3: Once your web service Created. Remove the selected part from Operation.java

```java
/*
 * To change this license header, choose License Headers in Project Pro
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package com.kk;

import javax.jws.WebService;
import javax.jws.WebMethod;
import javax.jws.WebParam;

/**
 *
 * @author pramo
 */
@WebService(serviceName = "PramodWS")
public class PramodWS {

    /**
     * This is a sample web service operation
     */
    @WebMethod(operationName = "hello")
    public String hello(@WebParam(name = "name") String txt) {
        return "Hello " + txt + " !";
    }
}
```

Step 4: Now go to the project palate. Expand your project, Go to the web services → Operation. Right click on Web service, select Test Web Service.



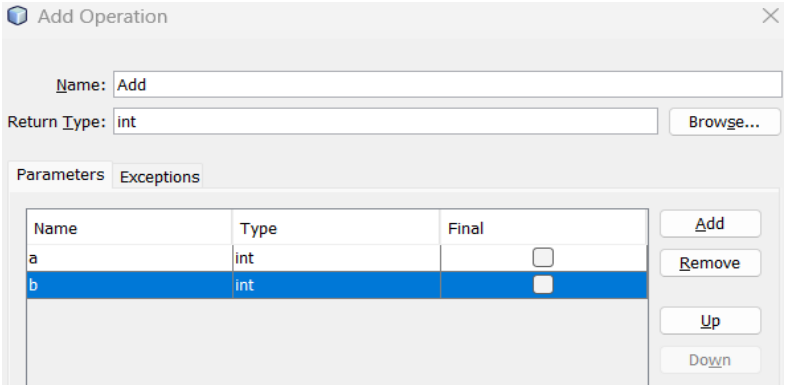
Step 5: Add Operations. The first operation is Addition.

Operation name is Add. The return type will be integer. Add some parameter.

Now here I am taking two parameters.

Parameter name is a & type will be integer.

Parameter name is b & type will be integer. After that, click on OK button.



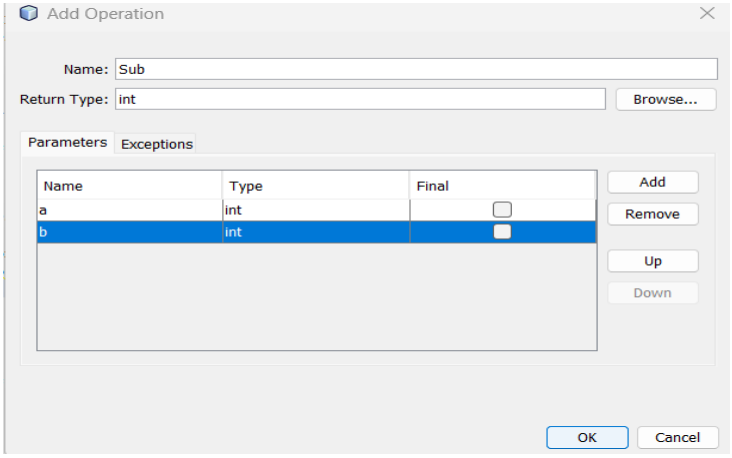
Step 6: Now the declaration of variable.

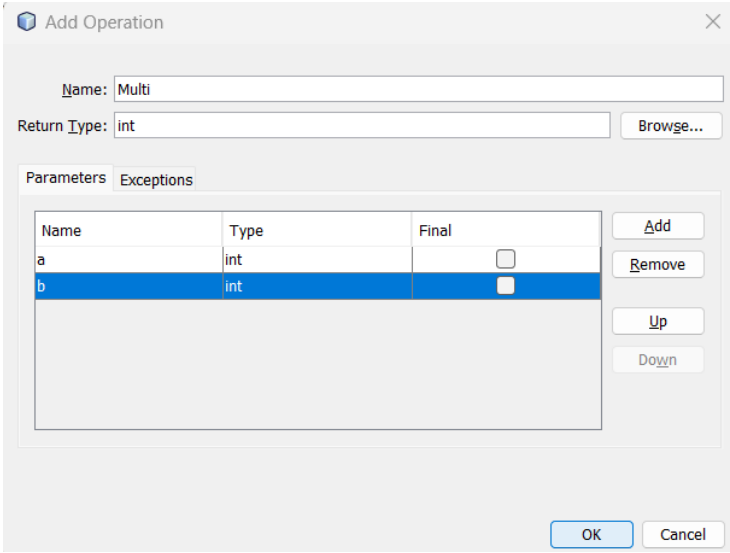
Int c = a+b;

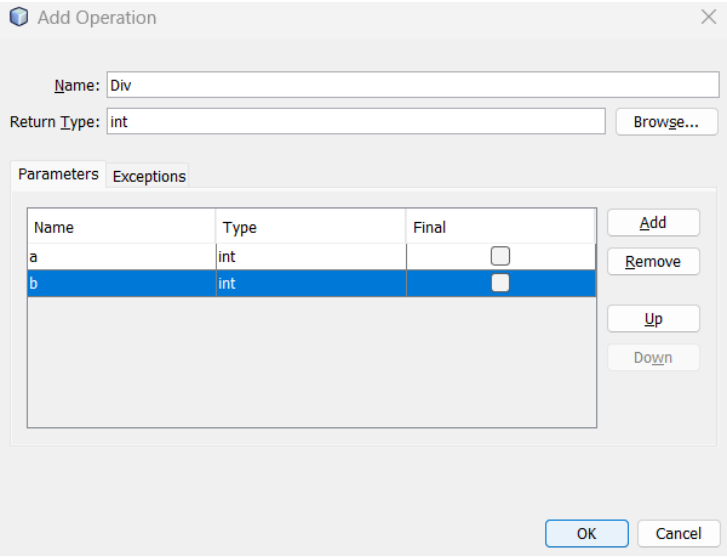
Return c;

```
/*
 * To change this license header, choose License Headers in Project Propert
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package com.kk;

import javax.jws.WebService;
import javax.jws.WebMethod;
import javax.jws.WebParam;

/**
 *
 * @author pramo
 */
@WebService(serviceName = "PramodWS")
public class PramodWS {

    /**
     * This is a sample web service operation
     */


    /**
     * Web service operation
     */
    @WebMethod(operationName = "Add")
    public int Add(@WebParam(name = "a") int a, @WebParam(name = "b") int b
        int c = a + b;
        return c;
    }
}
```

Step 7: Now repeat, the Step 4 & 5 for creation of Subtraction, multiplication & division Operation.







Step 8: Now, write the following code for subtraction, multiplication & division method.

Subtraction method:

int c = a-b;

return c;

Multiplication method:

int c = a*b;

return c;

Division method:

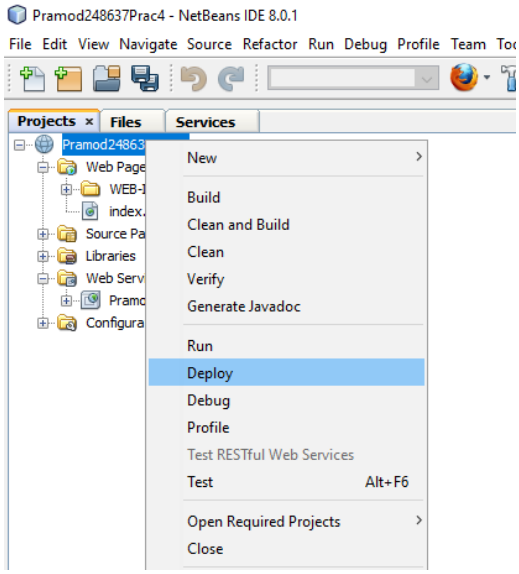
int c = a/b;

return c;

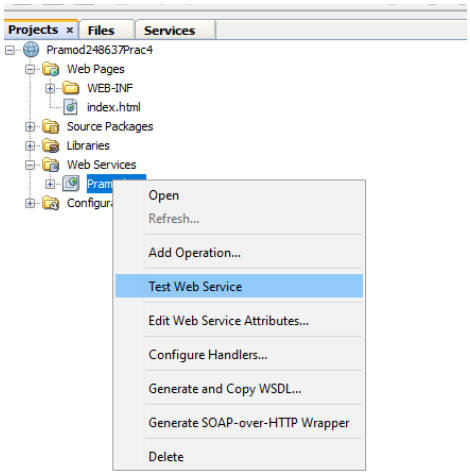
```
    @WebMethod(operationName = "Sub")
    public int Sub(@WebParam(name = "a") int a, @WebParam(name = "b") int b) {
        //TODO write your implementation code here:
        return a-b;
    }

    @WebMethod(operationName = "Multi")
    public int Multi(@WebParam(name = "a") int a, @WebParam(name = "b") int b) {
        //TODO write your implementation code here:
        return a*b;
    }

    @WebMethod(operationName = "Div")
    public int Div(@WebParam(name = "a") int a, @WebParam(name = "b") int b) {
        //TODO write your implementation code here:
        return a+b;
    }
    /**
     * This is a sample web service operation
     */

}
```

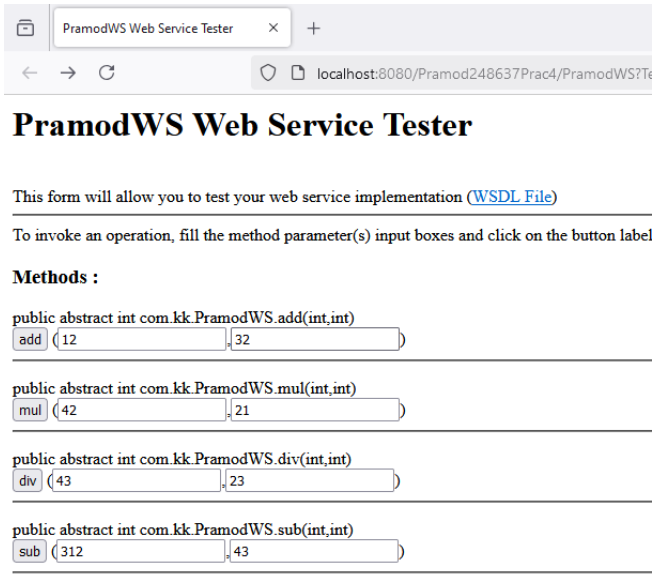
Step 9: Deploy Web Service

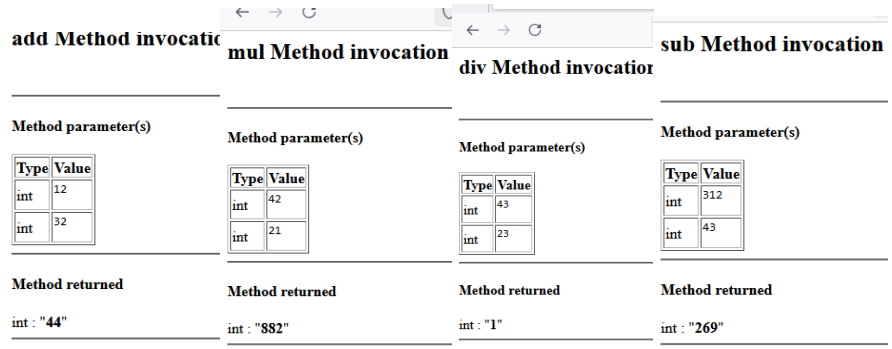
Right click on Web Application and deploy



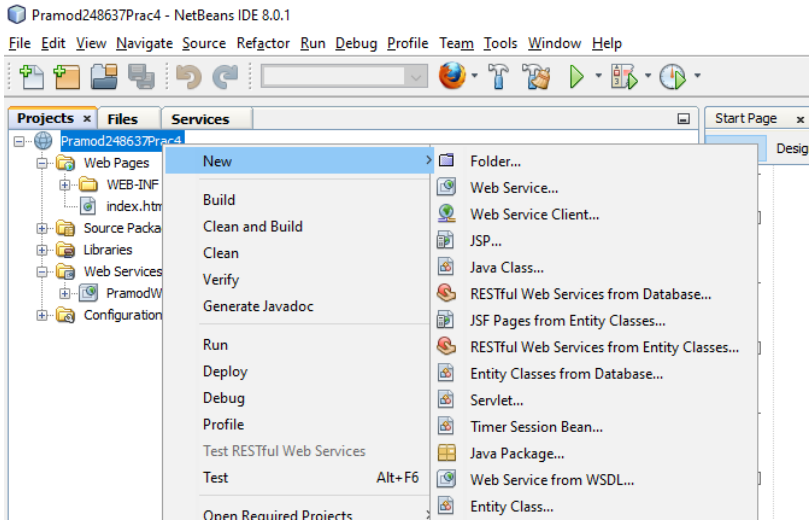
Step 10: Now test your web service.

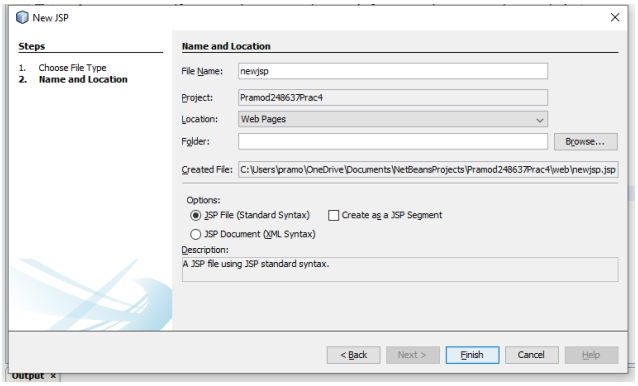






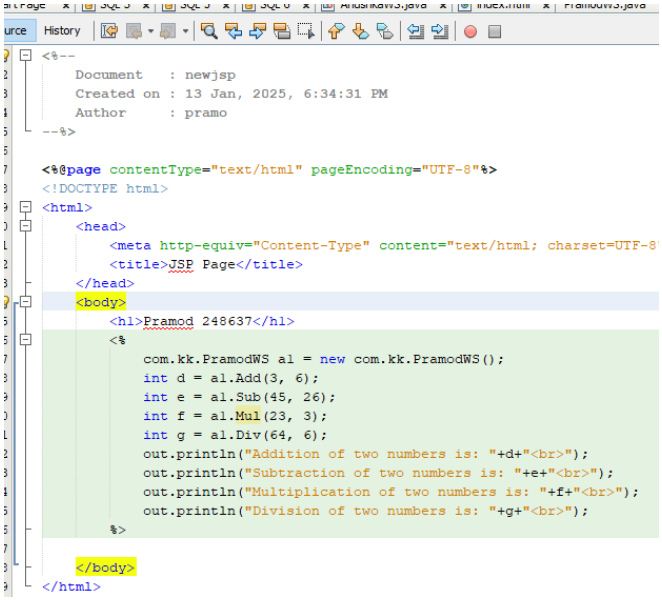
Step 11: Now right click on project. Select New → JSP page. Give the file name & click on Finish.



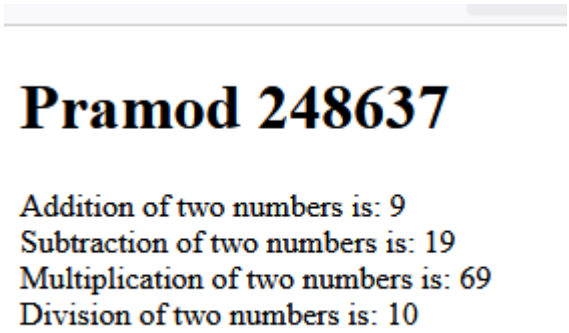


Step 11: Write the following code in JSP page.

```
<%
        com.kk.PramodWS a1 = new com.kk.PramodWS();
        int d = a1.Add(3, 6);
        int e = a1.Sub(45, 26);
        int f = a1.Mul(23, 3);
        int g = a1.Div(64, 6);
        out.println("Addition of two numbers is: "+d+"<br>");
        out.println("Subtraction of two numbers is: "+e+"<br>");
        out.println("Multiplication of two numbers is: "+f+"<br>");
        out.println("Division of two numbers is: "+g+"<br>");
    %>
```

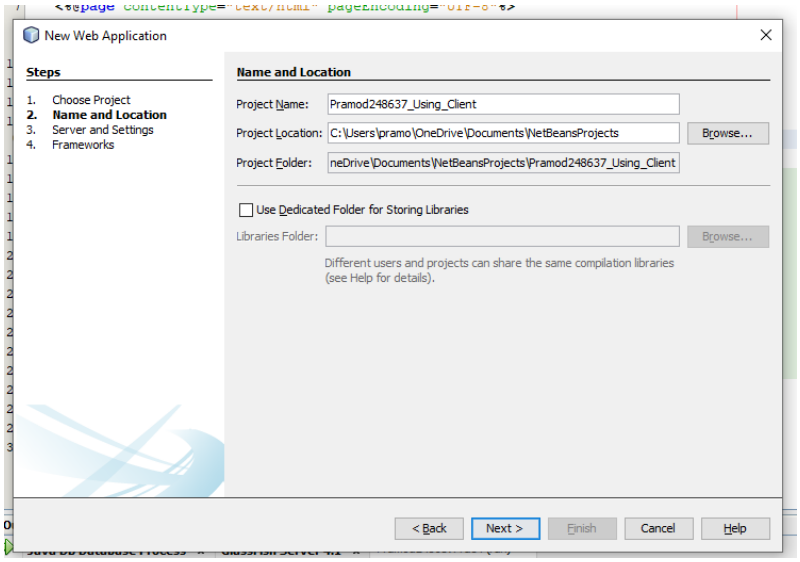


Step 12: Now right click on JSP page page. Click on Run file.

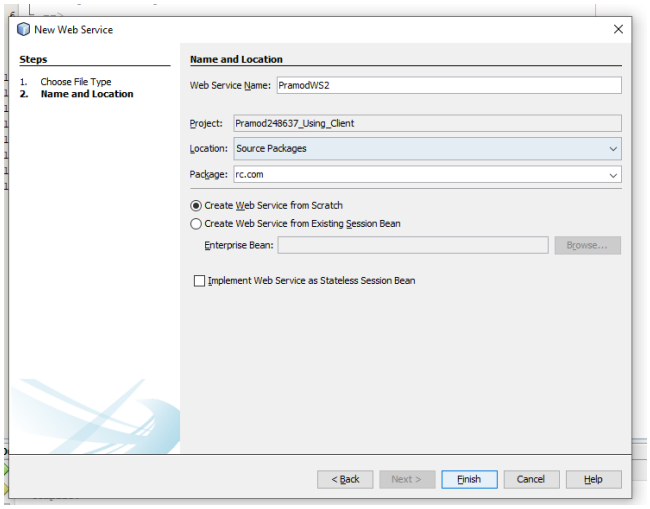


Q2. Write a JAX-WS web service server & client to perform the following operations. Define a servlet/ JSP that consumes the web service.

Step 1: Create a new project. New project → Java Web → Web Application.



Step 2: Right click on newly created project. Create a new web service. The service name is PramodWS2 & package name is rc.com.



Step 3: Remove the selected content from PramodWS2.java

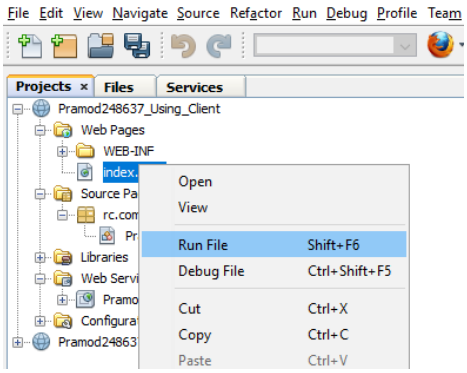
```
    * This is a sample web service operation
    */
    @WebMethod(operationName = "hello")
    public String hello(@WebParam(name = "name") String txt) {
        return "Hello " + txt + " !";
    }
}
```

Step 4: Write the following code in deleted content.

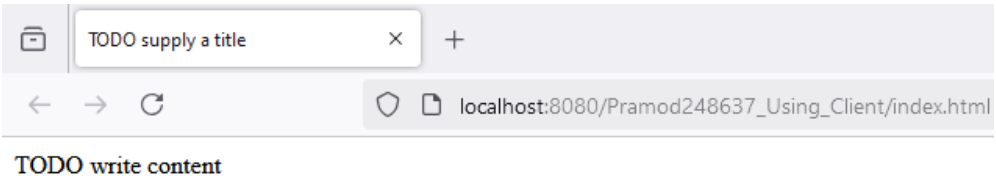
```
@WebMethod (operationName = "Square")
  public double square (double val) {
       return val*val;
}
```

```
20
21      /**
22       * This is a sample web service operation
23       */
24      @WebMethod(operationName = "Square")
        public double square(double val) {
            return val*val;
        }
28  }
29
```

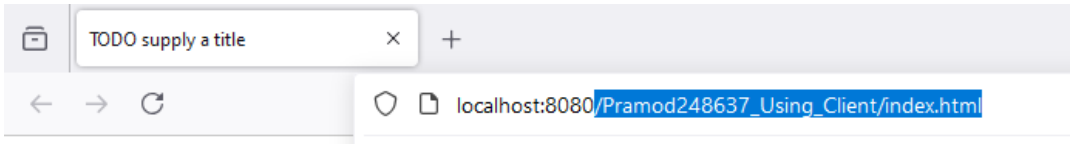
Step 5: Now go to the palate. Right click on index.html in project. Click on run file.



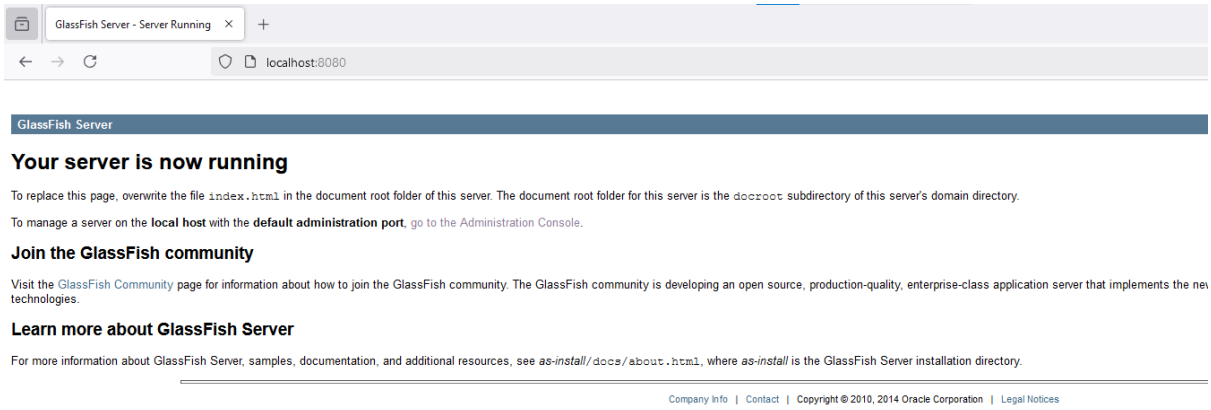
The following window will open after run your index.html file.



Step 6: Remove the selected part from link.

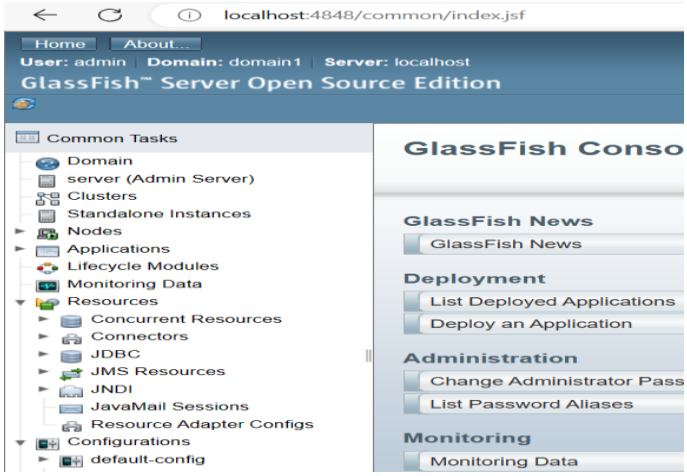


Now, the below window will open.

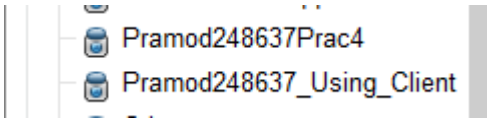


Step 7: Click on go to the administration console.

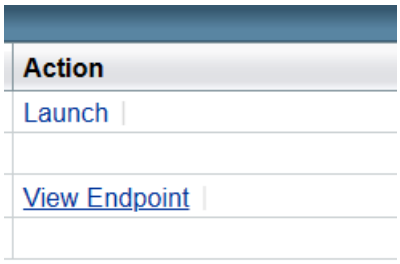
The following window will open.



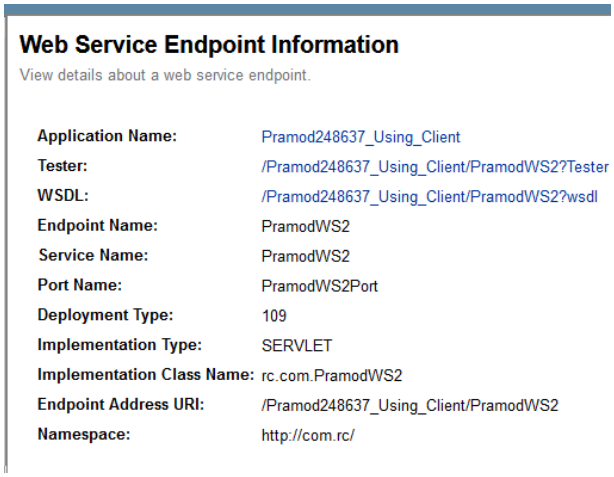
Step 8: In left side panel, expand the Application task. Click on your project.



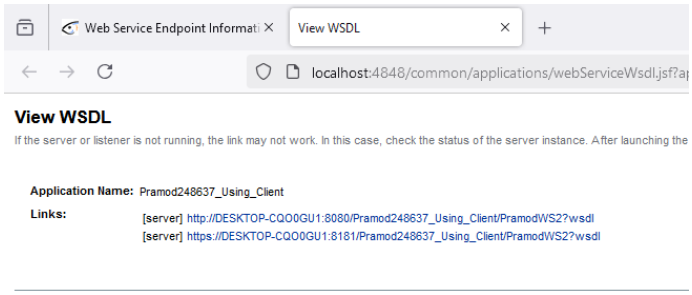
Step 9: Go to the general. Scroll down the page, there is one table which name is Modules & Components. In action column, click on View Endpoint.



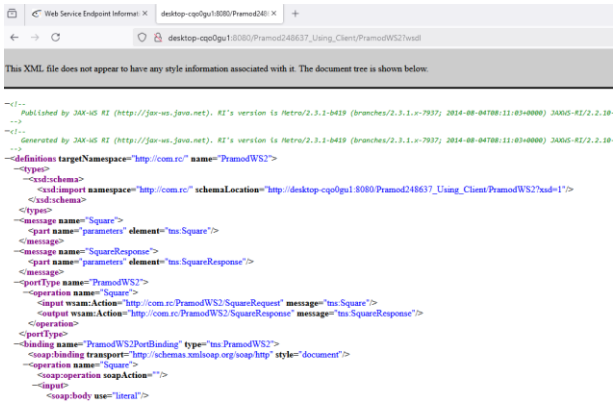
Step 10: Click on /Pramod248637_Using_Client/PramodWS2?wsdllink.



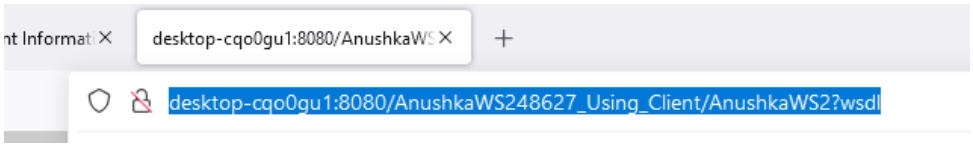
Step 11: When you click on link. The View WSDL window will open



Step 12: Click on first link which will provide the access of server.

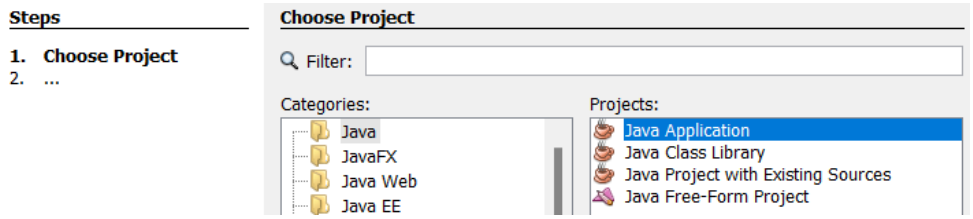


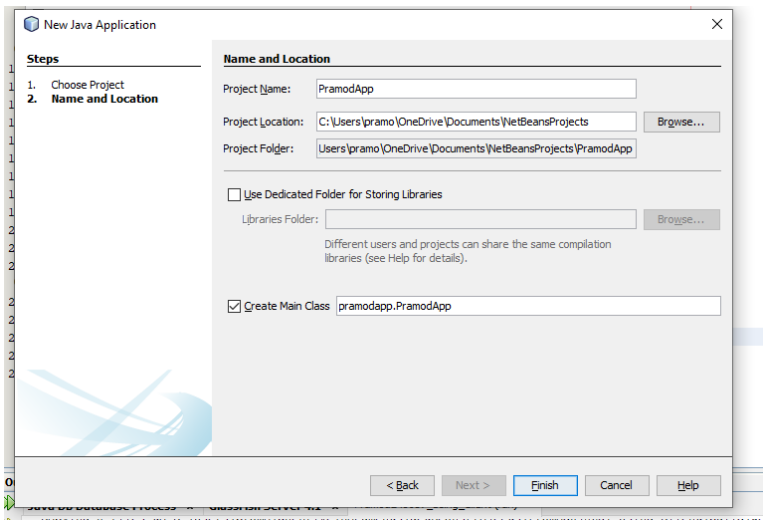
Step 13: Copy the link from search engine to notepad.



Now minimize the Microsoft edge window.

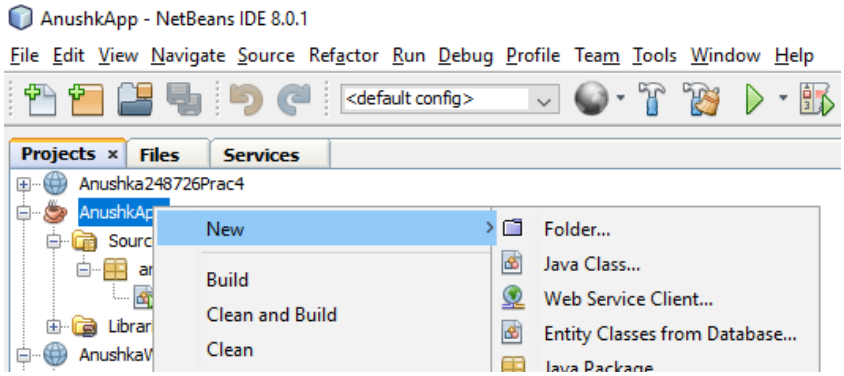
Step 13: Create a new Java project.



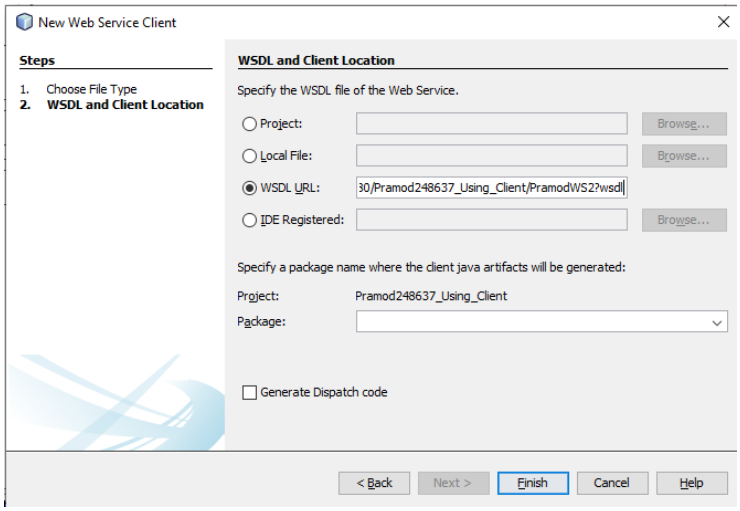


Step 14: In Java Application project, create a new web service client.

Right click on project → New → Web Service Client



Step 15: In new web service client. Select wsdl URL. Paste the copied link.



Step 16: Open JavaApplication.java. Type the following code.

PramodWS2_Service service = new PramodWS2_Service();

final PramodWS2 proxy = service.getPramodWS2Port();

System.out.println(proxy.square(7));

```
 * @author pramo
 */
public class PramodApp {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        PramodWS2_Service service = new PramodWS2_Service();
final PramodWS2 proxy = service.getPramodWS2Port();
System.out.println(proxy.square(7));

    }

}
```

Step 17: Now import the service packages.

```
 */
package pramodapp;
import rc.com.PramodWS2;
import rc.com.PramodWS2_Service;
```

Step 18: Run the Java application project.