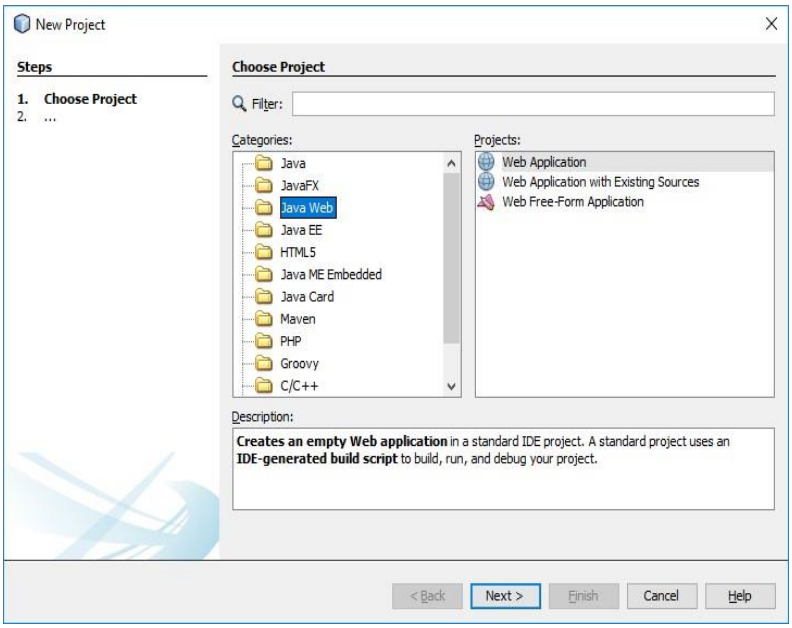
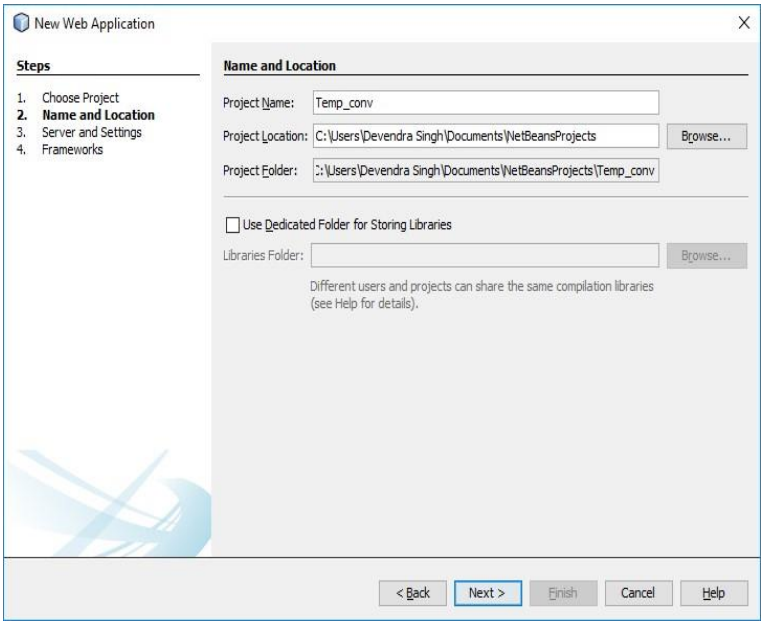
PRACTICAL-01

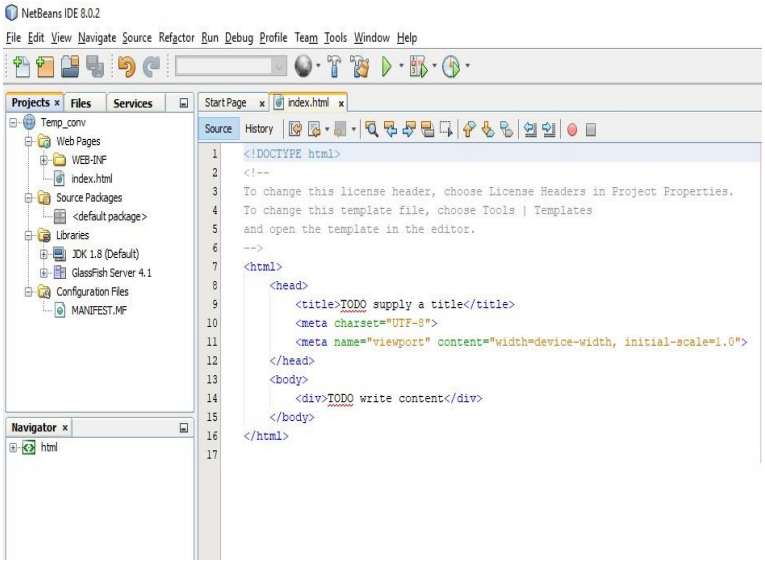
1. Go to **File -> New Project**. Select **Java Web in categories** and **Web Application in Projects. Click on Next** to create web based project.



2. Enter a project name whatever you want and then click on **Next**. On next page click **Finish**.

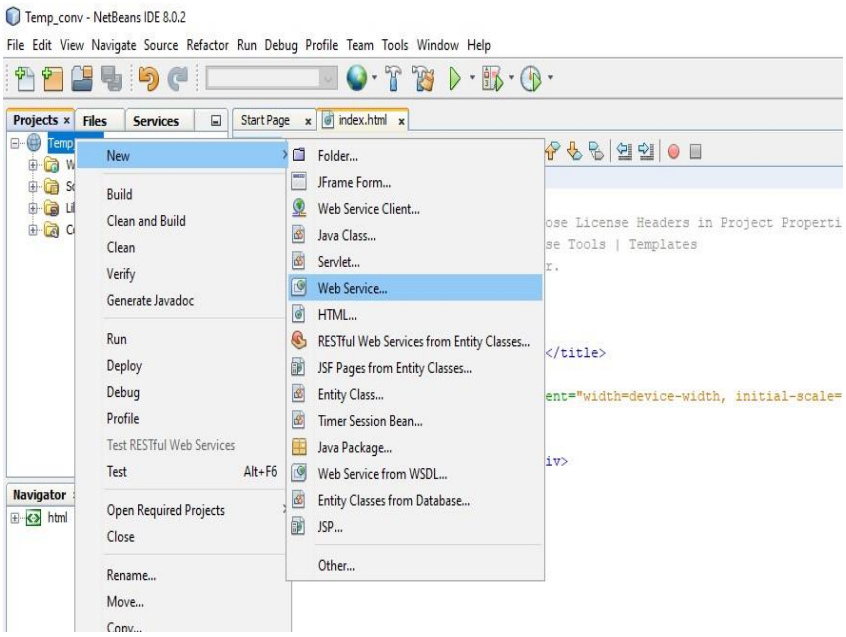


3. After completion of project creation process a window will appear like below.

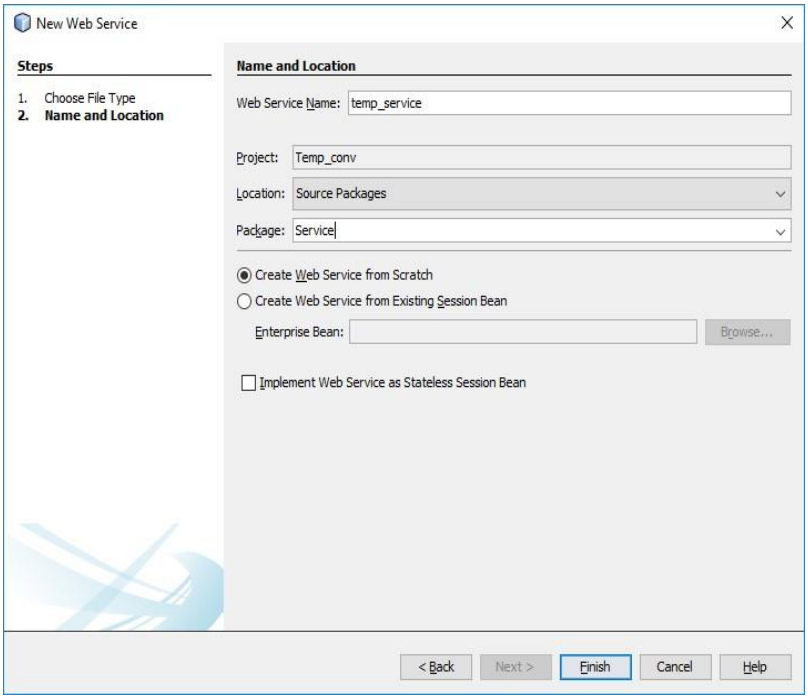


4. Create web service.

Right click on Project -> New -> Web Service

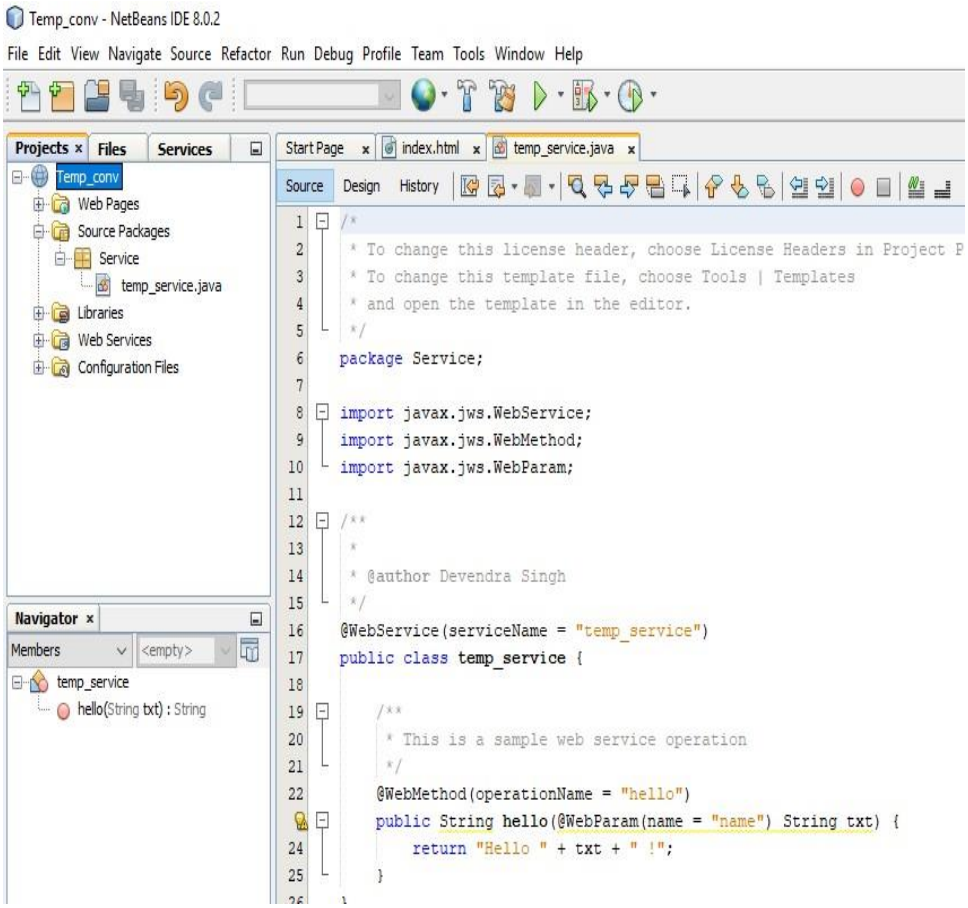


5. **Enter a Web Service Name and package name** and then **click on Finish** to create a Web Service.

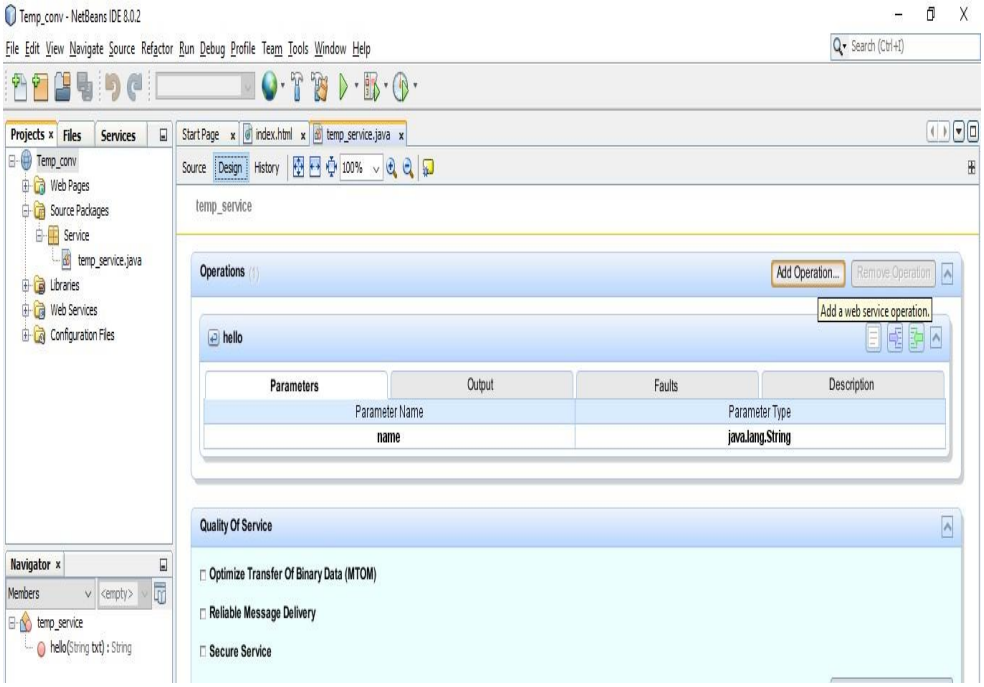


6. As you can see in following pic; In **Source Packages** there is a package **Service** which contains the service file **temp_service.java**. Open this file by double click on it, So that we can add two operation that will convert temperature from celcious to farhenheit and vice-versa.

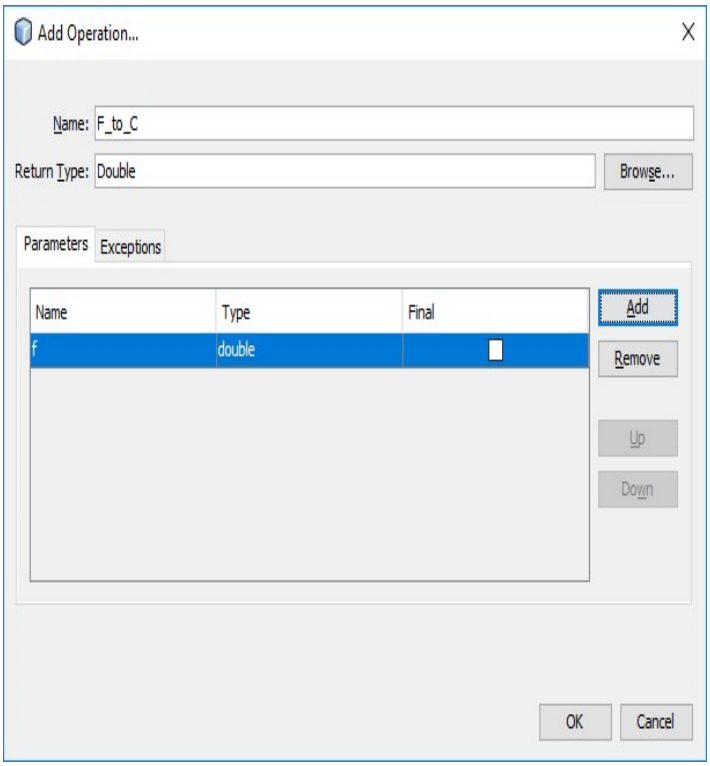
Go to design mode by click on **Design** .



7. **Click on Add Operation** to add operation.



8. Give Operation name **F_to_C** and return type as **Double**. So this method will return value in Double data type. After that click on **Add** button to give parameters for method. Give its name as **f** and type as **Double** and then click on **OK** button. Your one operation is now successfully created.

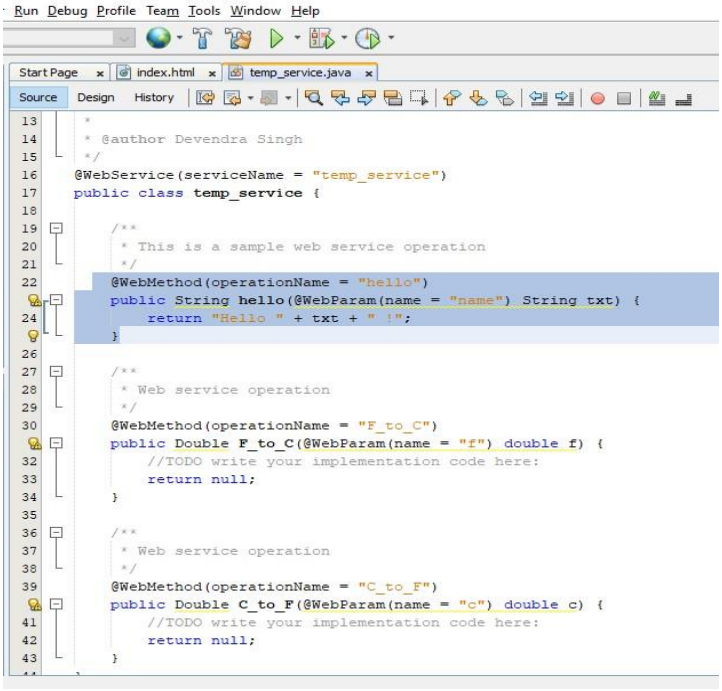


9. **Repeat step 7 & 8** to create second operation. But this time replace some above entered data with following data.

   F_to_C -> C_to_F

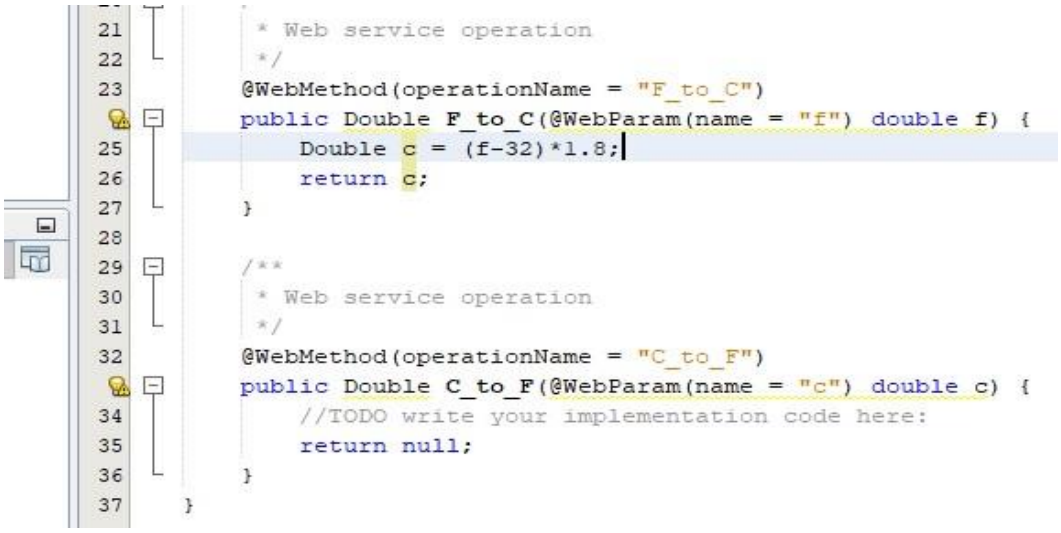
   f -> c

10. Now go to source mode by click on **Source** and **delete the selected** segment of code. Because it is default operation and we don't need this.



11. Now **replace the selected area with following code** to convert Fahrenheit to Celsius.

Double c = (f-32)*1.8;
return c;

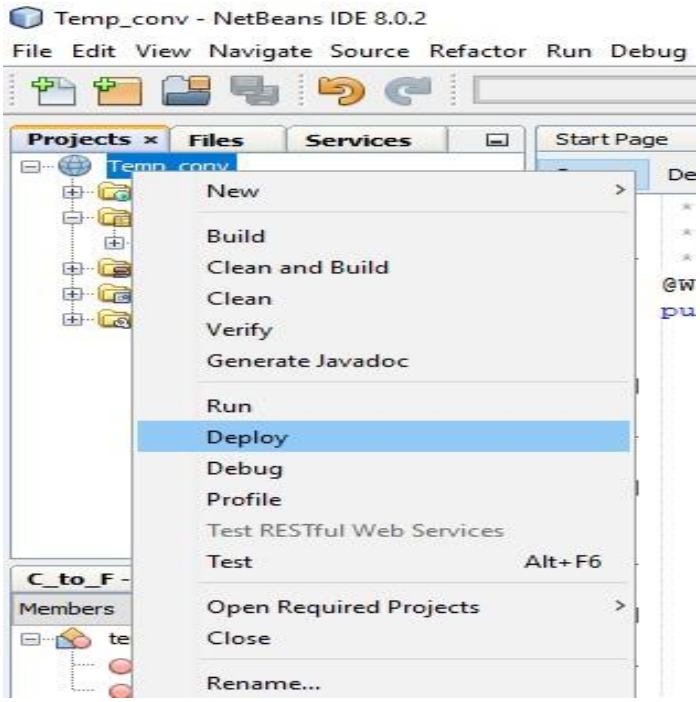


12. Now **replace the selected area with following code** to convert Celsius to Fahrenheit and then press Ctrl+S to save.

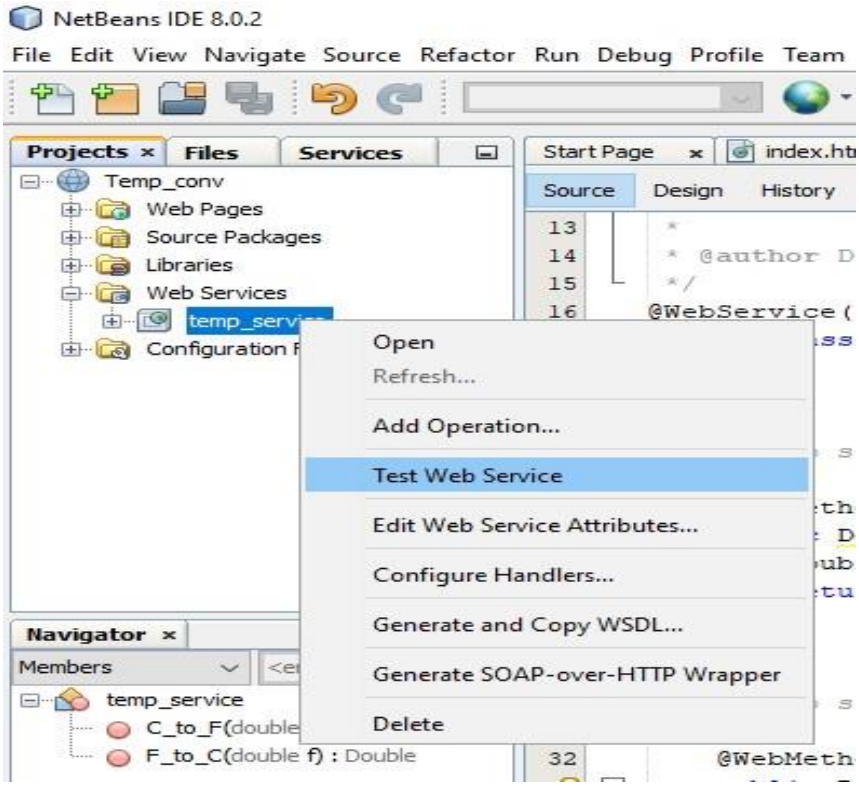
Double f = (c*1.8)+32; return
f;

```
18
19
20      /**
21       * Web service operation
22       */
23      @WebMethod(operationName = "F_to_C")
        public Double F_to_C(@WebParam(name = "f") double f) {
25          Double c = (f-32)*1.8;
26          return c;
27      }
28
29      /**
30       * Web service operation
31       */
32      @WebMethod(operationName = "C_to_F")
        public Double C_to_F(@WebParam(name = "c") double c) {
34          //TODO write your implementation code here:
            return null;
36      }
37  }
38
```

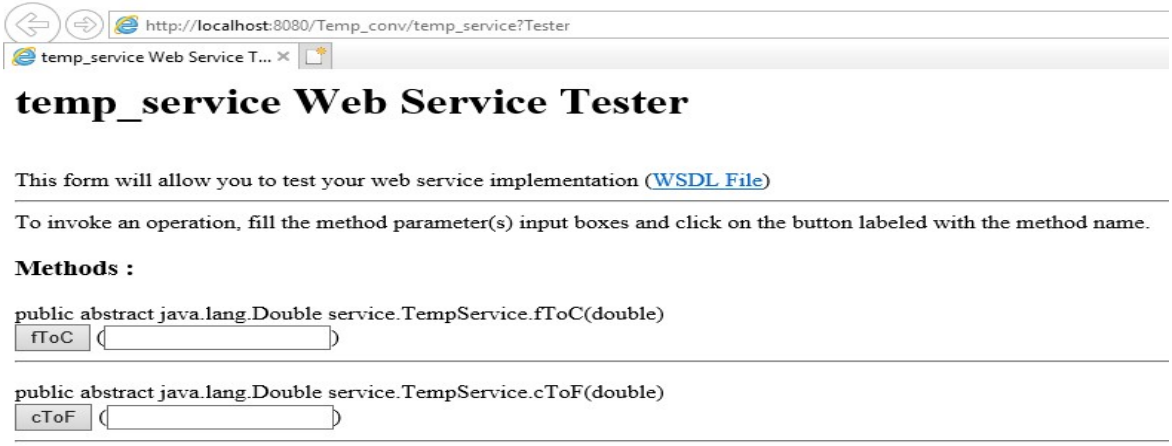
13. Now **right click on project name** and **click on Deploy** to deploy your project.



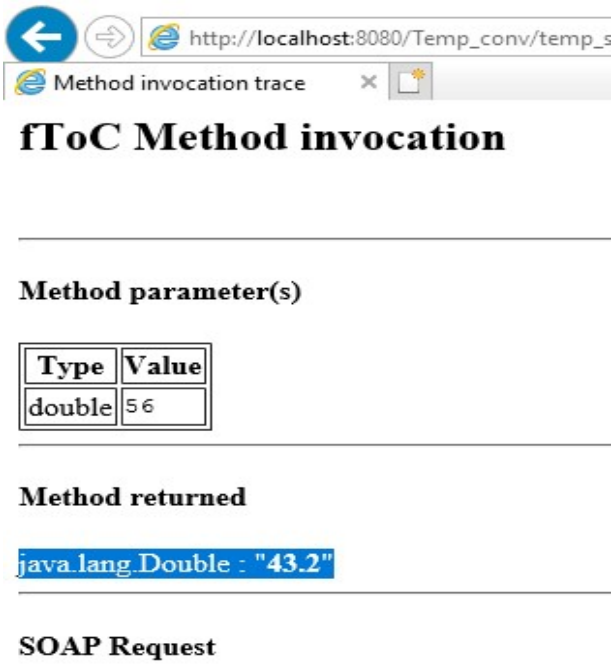
14. To test your web service follow the following process as in picture.



15. Following window will open in in browser. Now if you will enter a numeric data into first box and you will click on first button it will convert the entered data into Celsius.

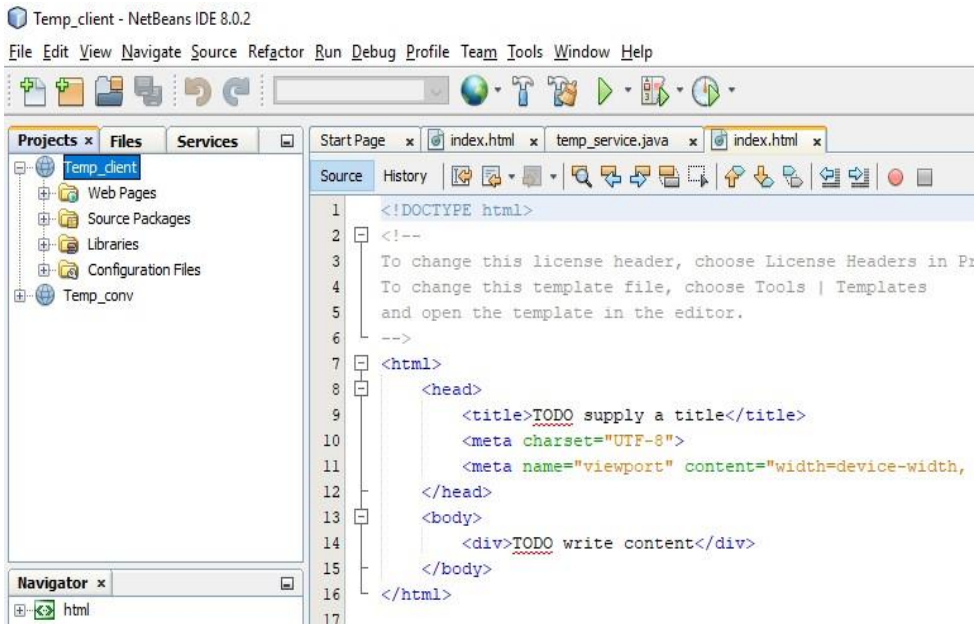


16. Selected value is in celsius of 56.



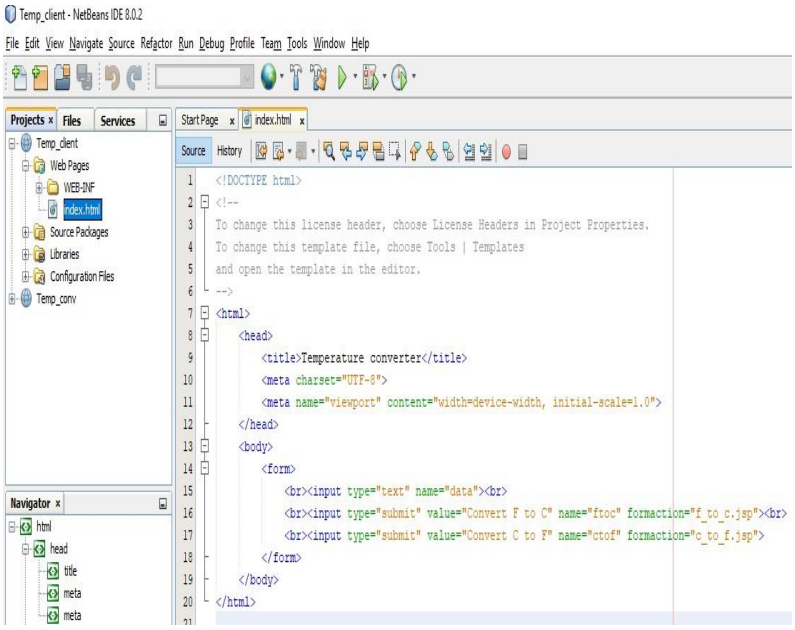
17. Similarly second textbox and button will convert the numeric value into Fahrenheit. Now to consume this web service we are creating a client.

18. Now create a new web application project with **name** as **Temp_client**.

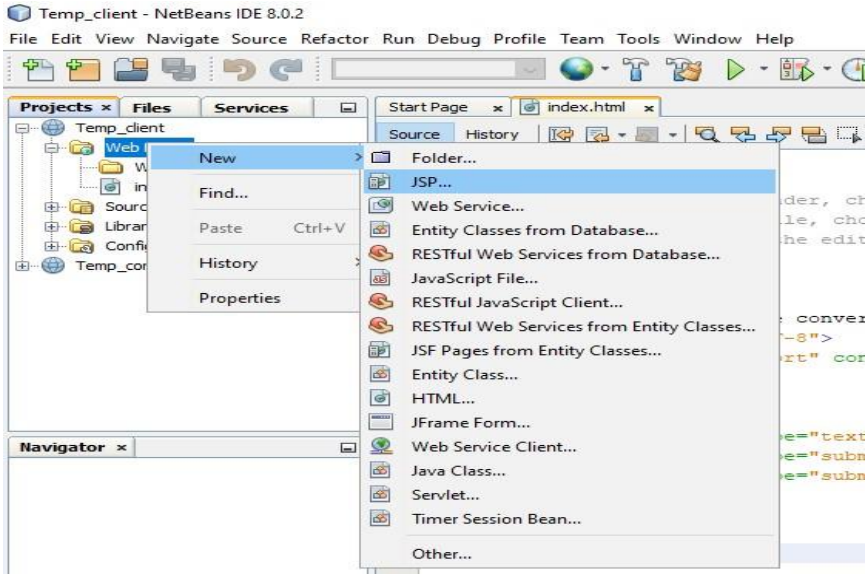


19. Now **open the index.html** page of Temp_client and write the following code into that.

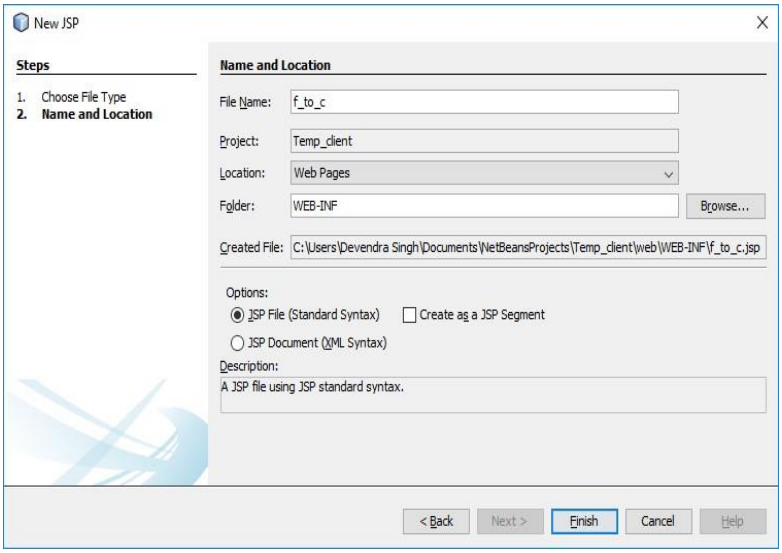
```
<html>
  <head>
    <title>Temperature converter</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width,
initialscale=1.0">  </head>
  <body>
    <form>
      <br><input type="text" name="data"><br>
      <br><input type="submit" value="Convert F to C" name="ftoc"
formaction="f_to_c.jsp"><br>
      <br><input type="submit" value="Convert C to F" name="ctof"
formaction="c_to_f.jsp">
    </form>
  </body>
</html>
```



20. Now create two jsp pages for both submit button. **Right click on Web Pages -> New -> JSP**

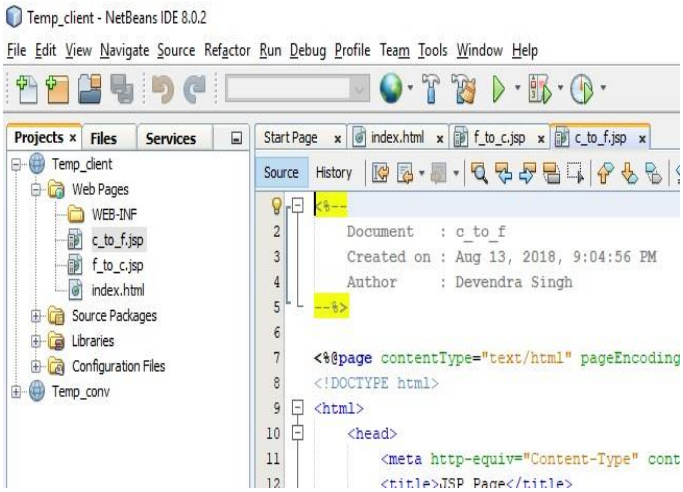


21. Enter file name f_to_c and then **click on Finish**.

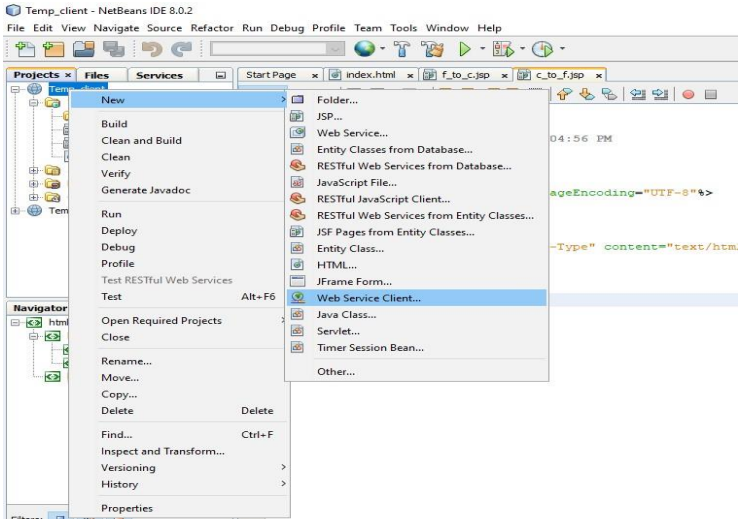


22. Now **repeat the step number 20 & 21.** But **give the File Name as c_to_f**.

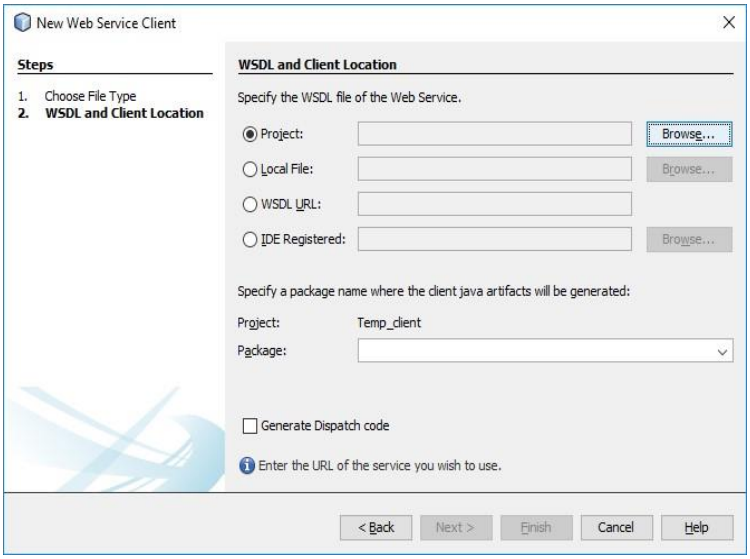
23. Now you have created two jsp files.



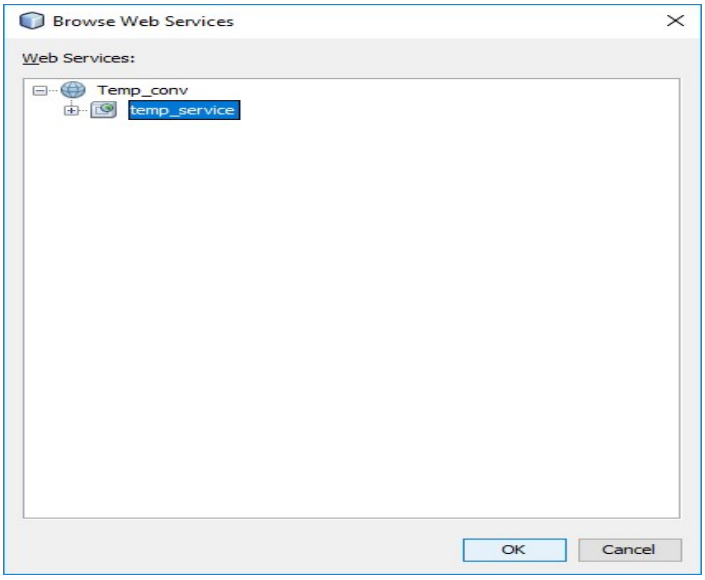
24. Right click on Temp_client and **select Web Service Client** as below.



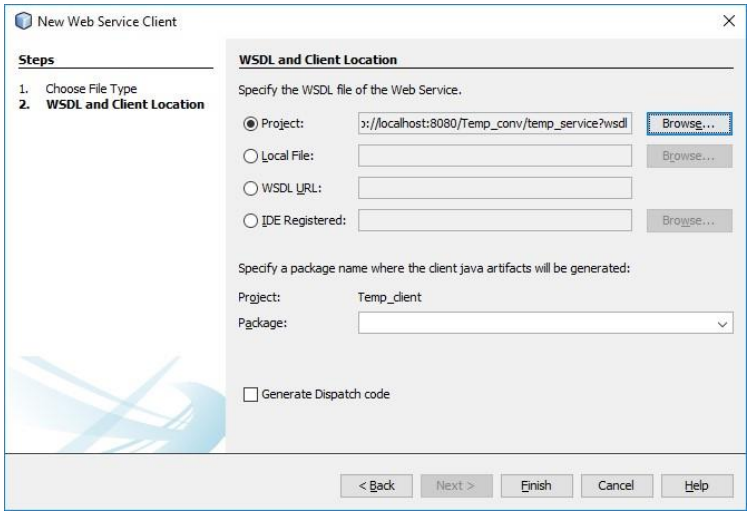
25. Click on Browse.



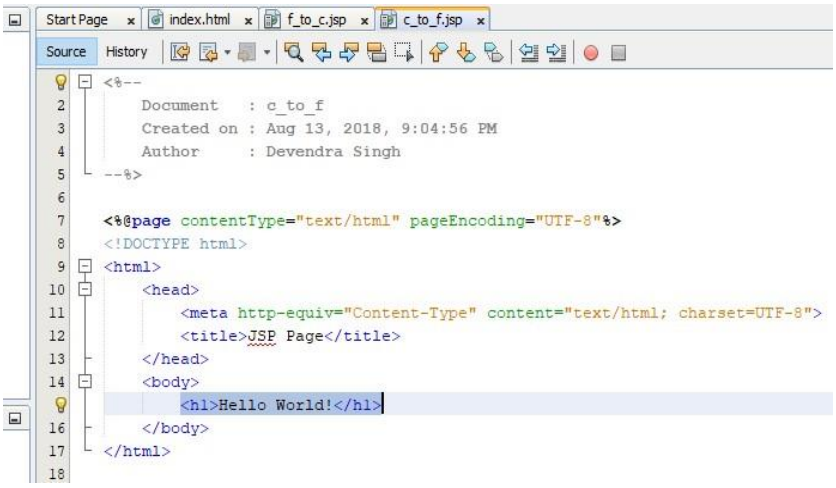
26. New window will appear and then select **temp_service** and click on **OK**.



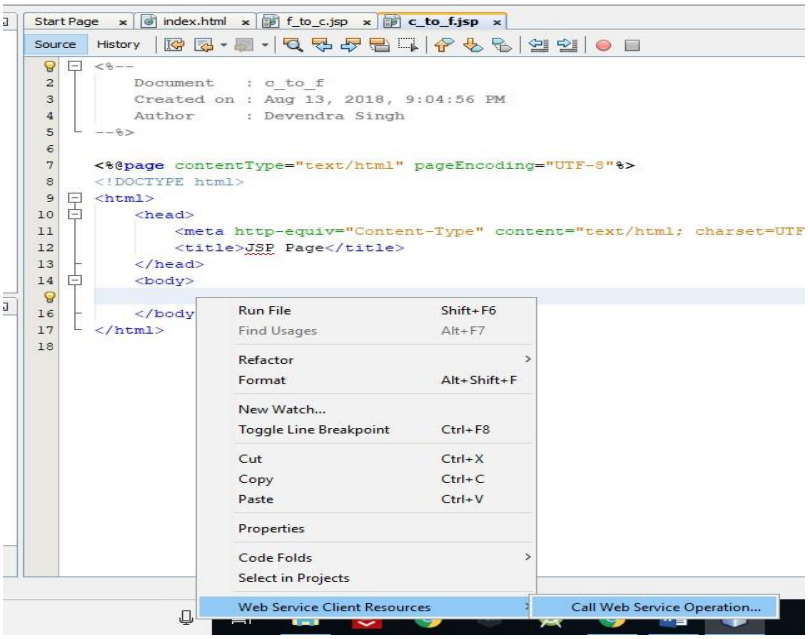
27. Click on Finish.



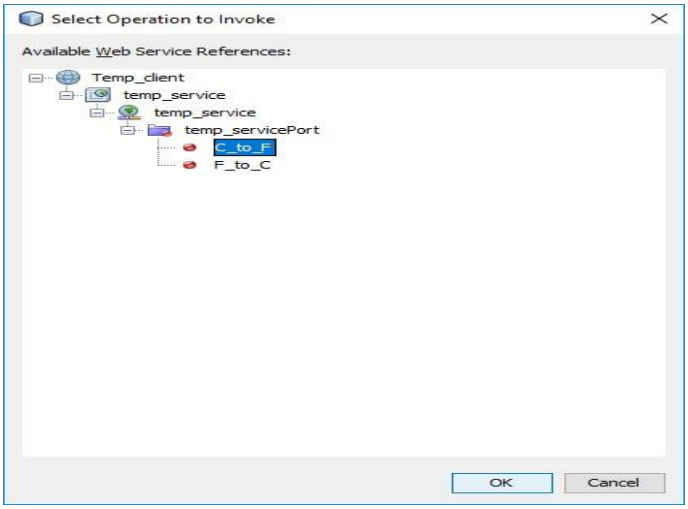
28. Now **open the c_to_f.jsp file** and **delete the selected line**.

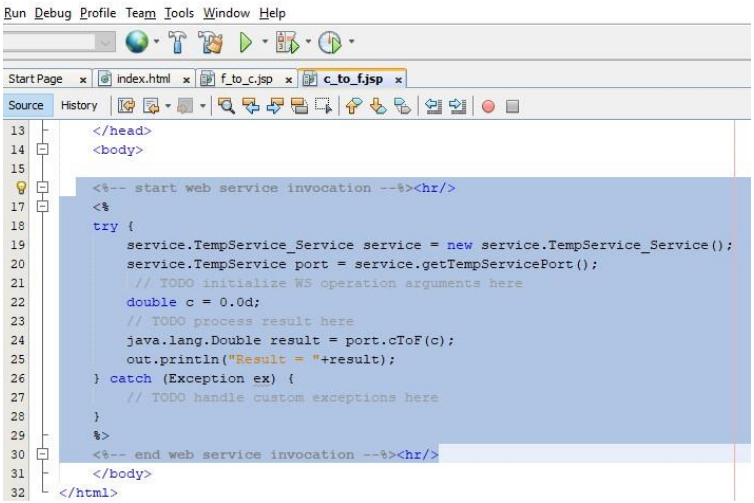


29. Now **right click in between the body section** and **select Call Web Service Operatin** as below.

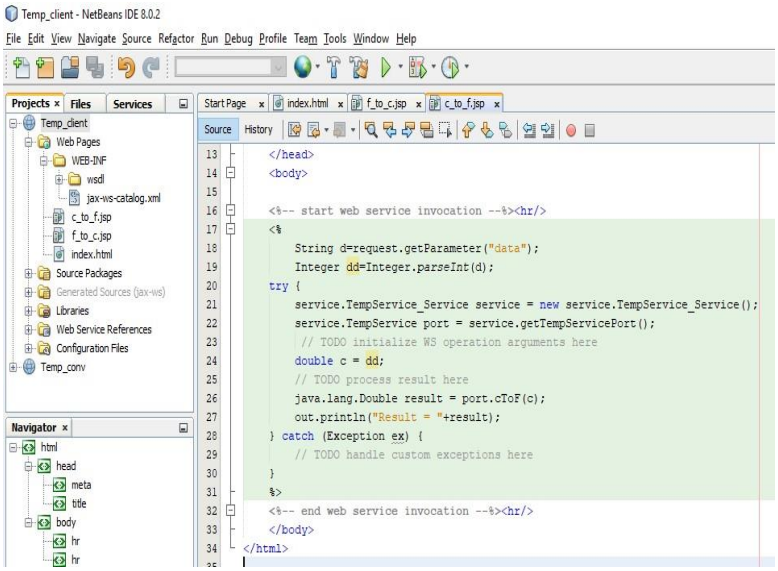


30. New window will appear **select the C_to_F by expanding it** and **click on OK**. So that selected code in second pic will be automatically generated.



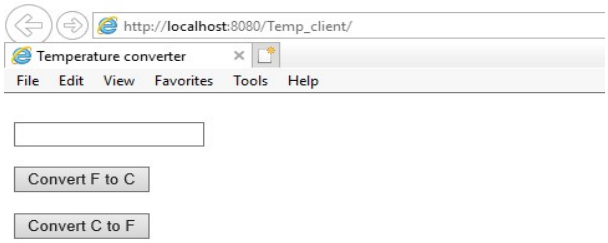


31. Now, **make the selected area in step 30 as like selected area in below pic** by adding some line of code.



32. Now **Open the f_to_c.jsp file** and **follow the steps from 28 to 31**. **Only the change** is in **30 number step** and i.e. **instead of C_to_F, you have to select F_to_C.**

33. Now **run the Temp_client project**. An window will be open like below.



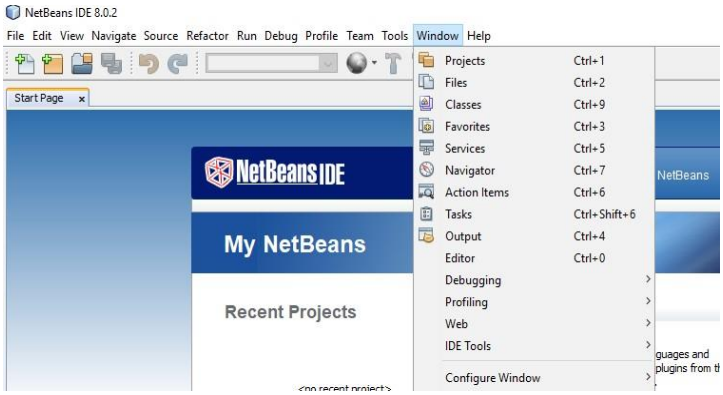
34. Now you can to enter any numeric data into textbox and if you will click the first button it will convert the numeric value into Celsius and vice-versa for the second button.

35. There are so many methods to consume the web service. But I found it easy.

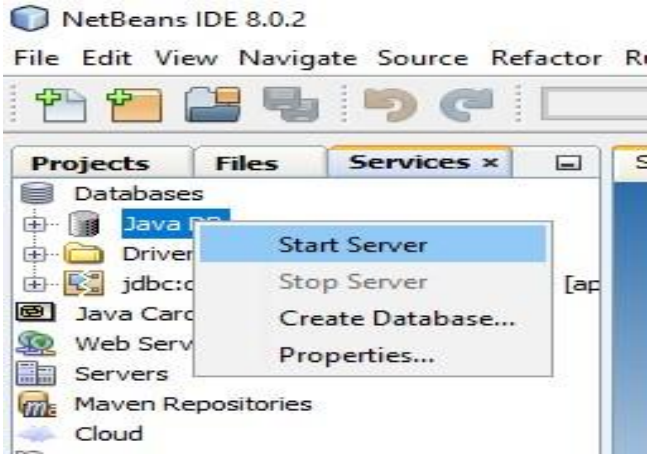
PRACTICAL-2

AIM: Write a program to implement the operation can receive request and will return a response in two ways. a) One - Way operation b) Request –Response.

1. Click on Window menu and click on Projects, Files & Services to open it.

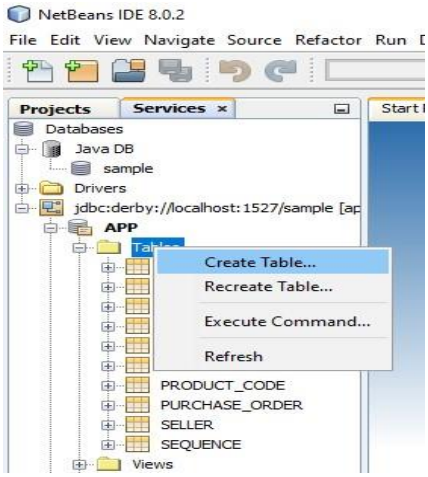


2. Right click on Java DB and then click on Start Server to start the server .

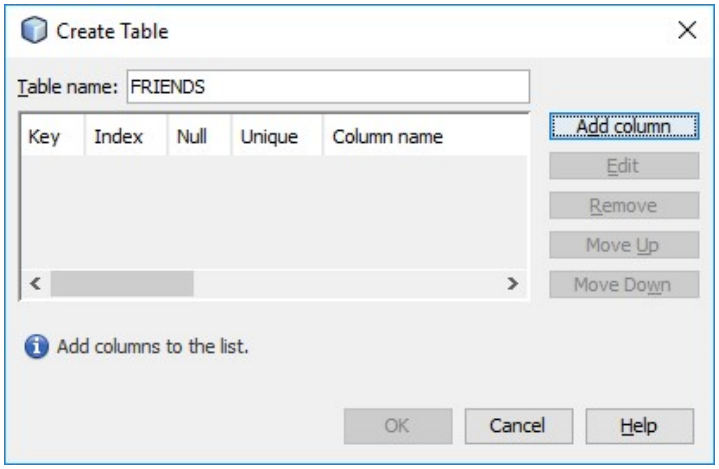


3. Now expand Java DB and right click on sample and then click on connect to connect the sample database with server.

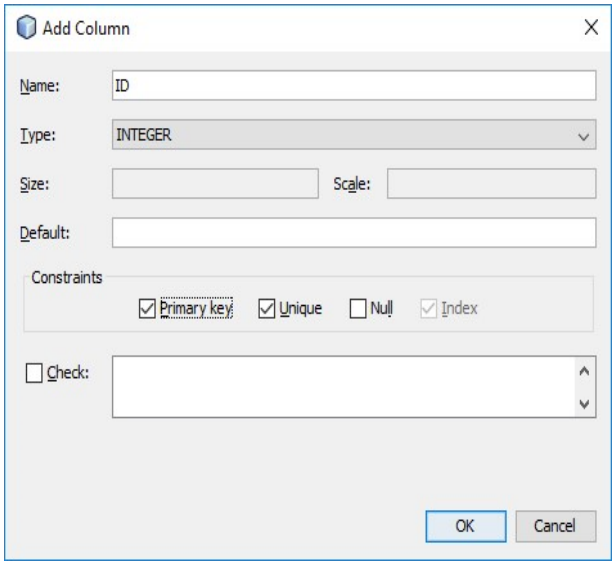
4. Now we are going to create a table in default database sample.
Right click on Table -> Create Table



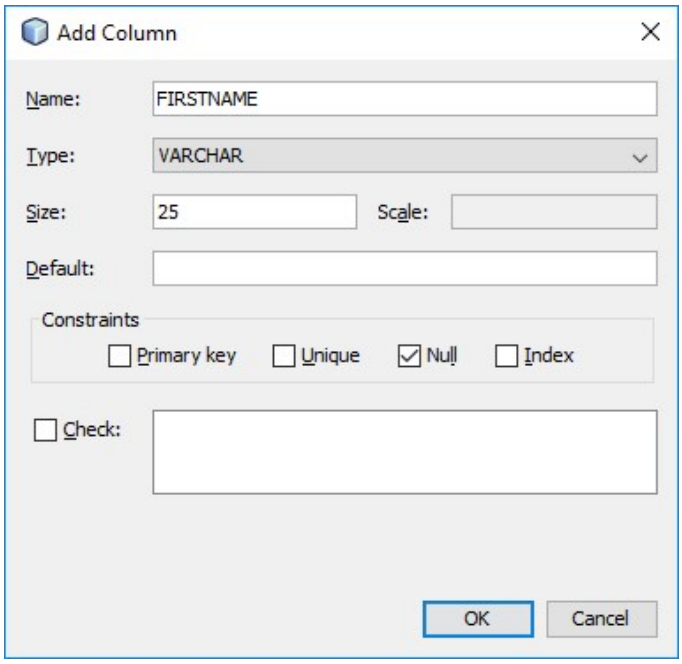
5. Give table name as FRIENDS.



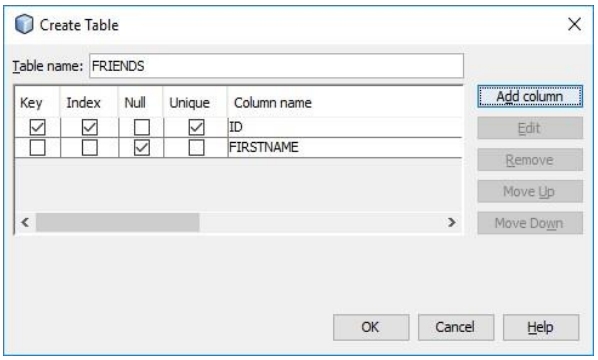
6. click on Add column button to add columns in table.
Enter details as in below pic and select Primary key. After that click on OK button.



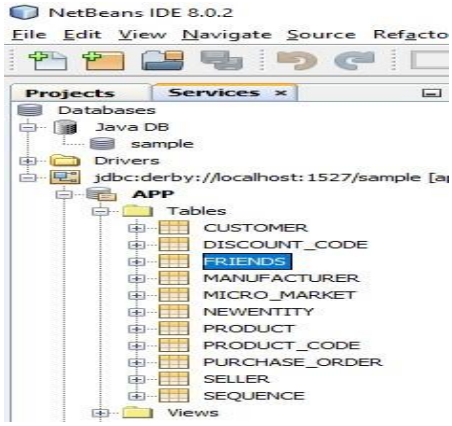
7. Now add second column with following detail. But don't select primary and click on OK button.



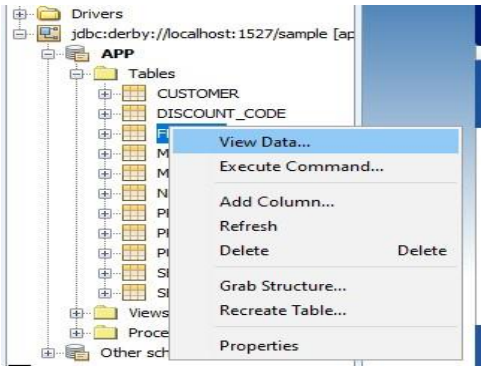
8. click on OK button.



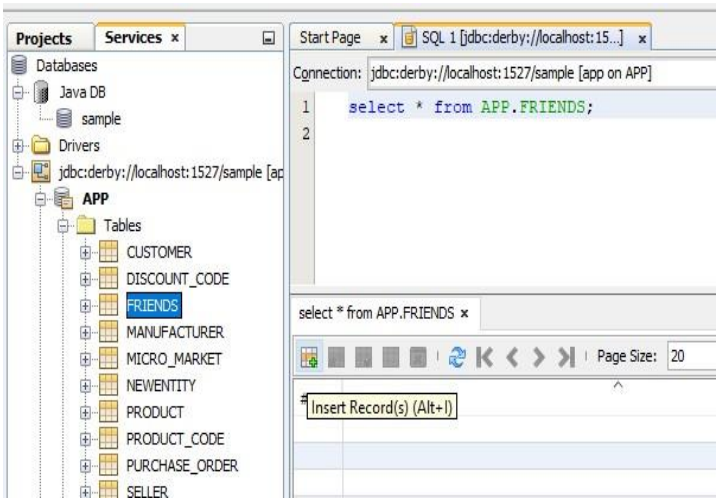
9. Now you can see a table with name FRIENDS in the table.



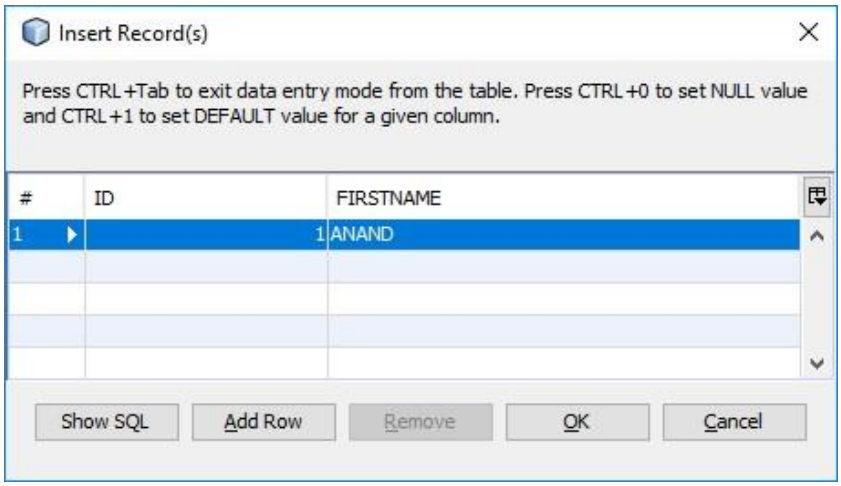
10. Right click on FRIENDS to view and add records into it.



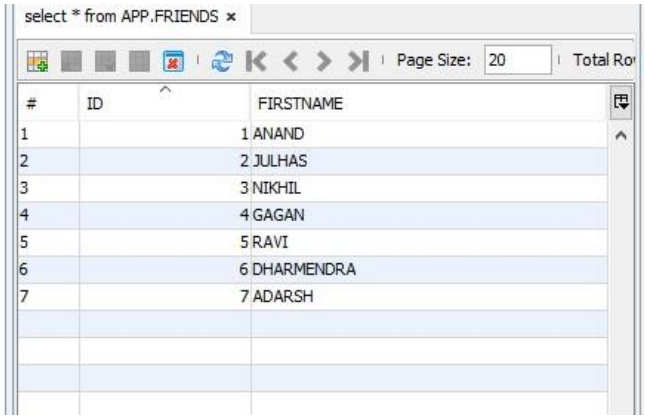
11. click on the leftmost icon in second panel to insert some record.



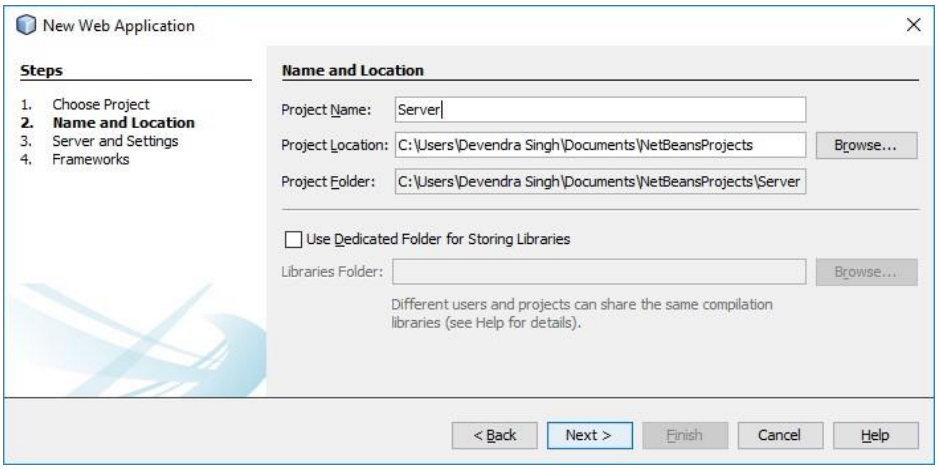
12. Insert a record and then click on Add Row button to insert more record. After that click on OK button to finish.



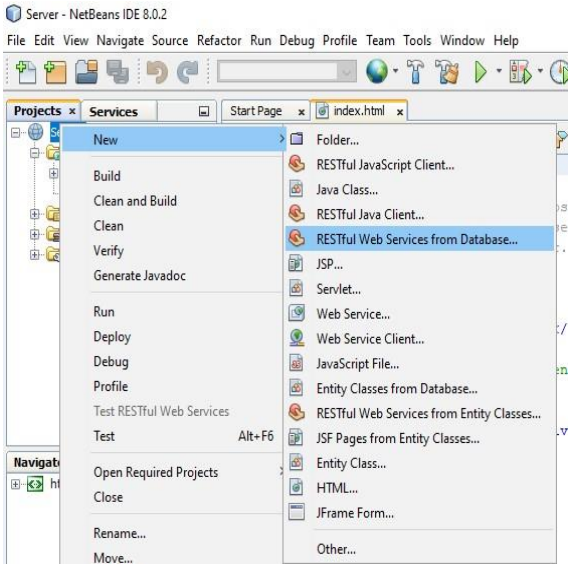
13. As you can see, I have entered 7 records.



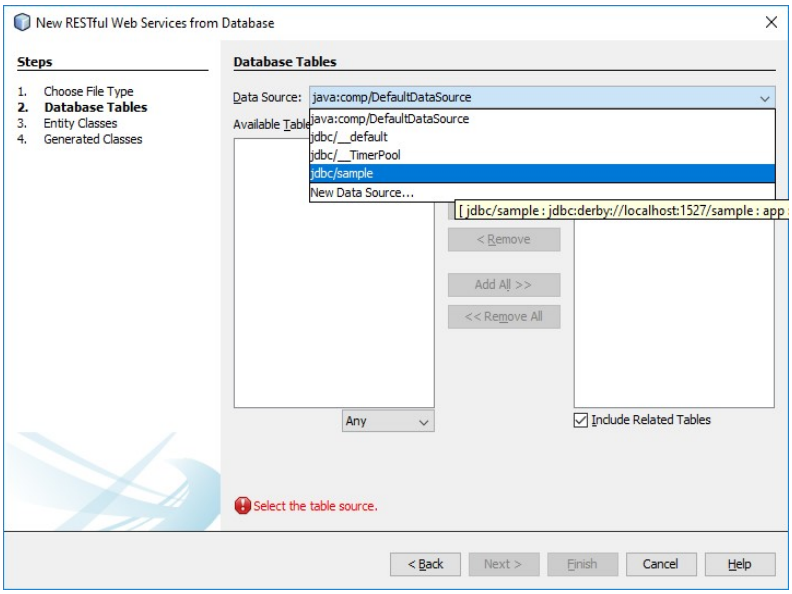
14. create a web application with name Server. After that click on Next and then Finish button.



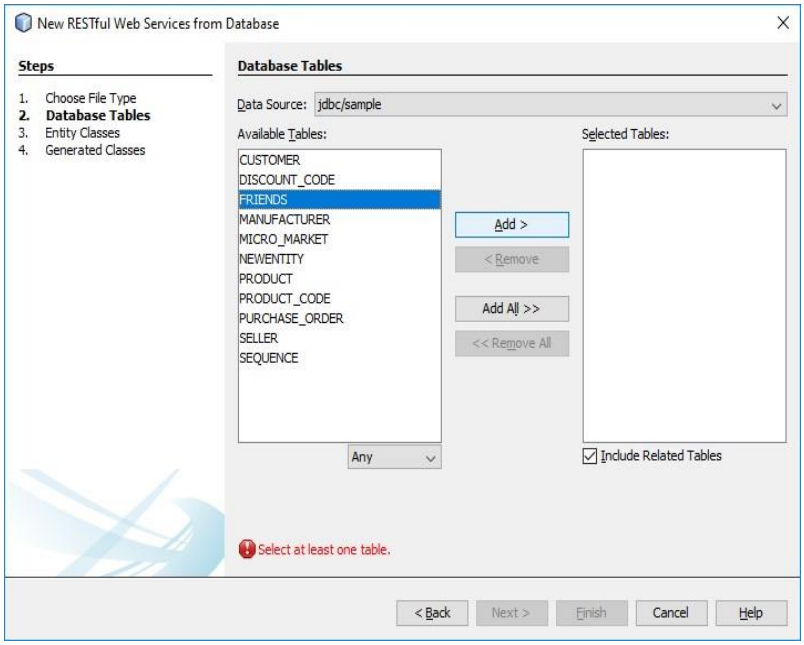
15. Now create a RESTful Web Service from Database by right click on project name.



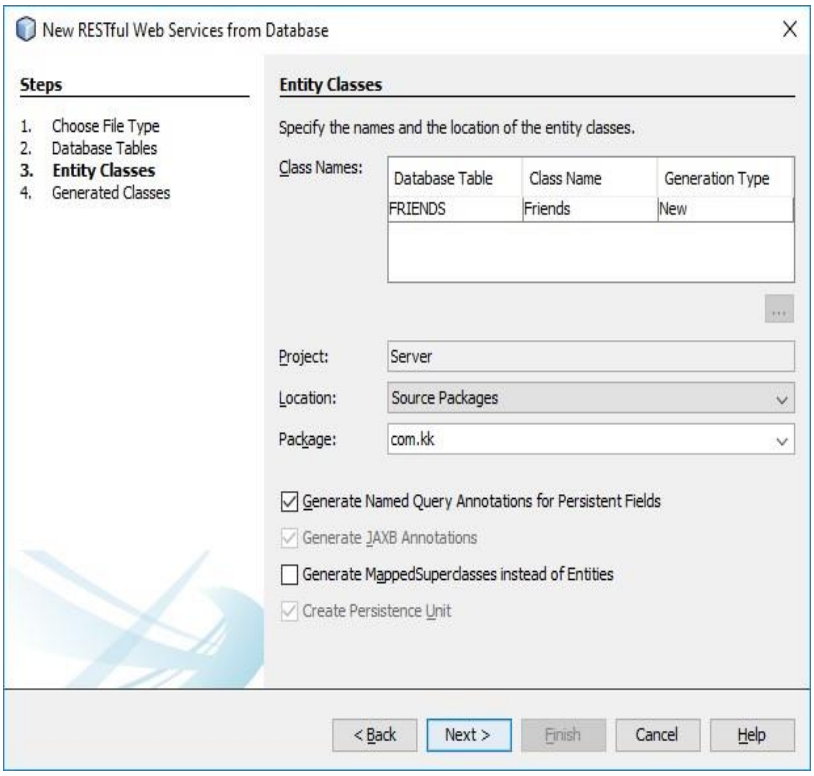
16. Choose Data Source jdbc/sample.



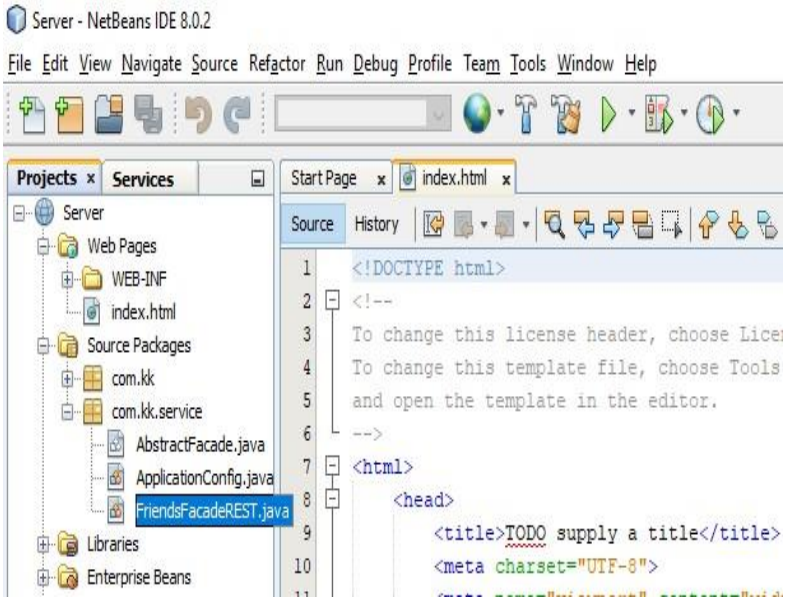
17. Now select FRIENDS and click on Add button. After that click on Next button.



18. Enter Package name as com.kk and click on Next button and then Finish.

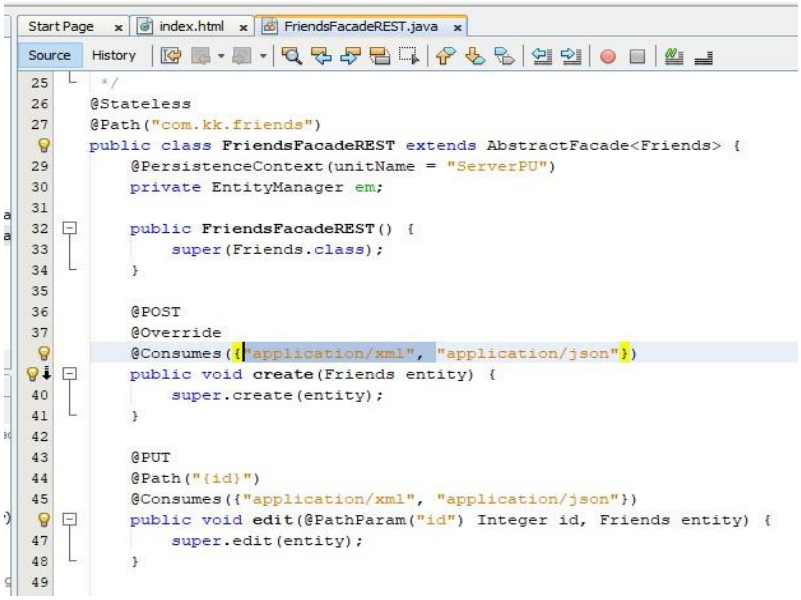


19. Now open selected file by double click on it.

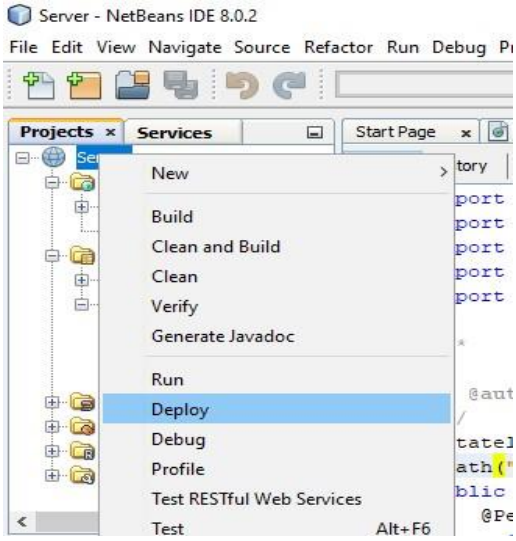


20. Now remove the selected part from every method in this file. So that it will communicate only in JSON format. You can also use methods to convert it. But this is easiest method.

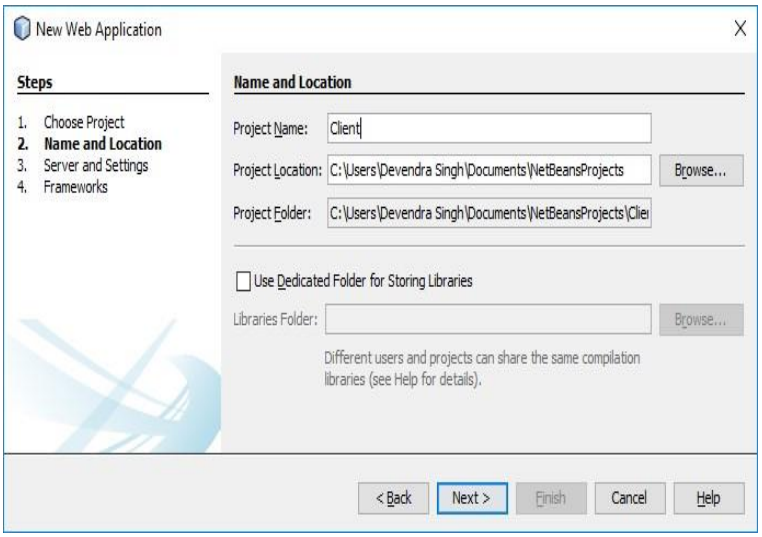
Note : If you get error “javax.ws.rs” doesnot exist, add `Java EE 6 API Library in NetBeans IDE by doing myProject->Properties->Libraries->Add Library`



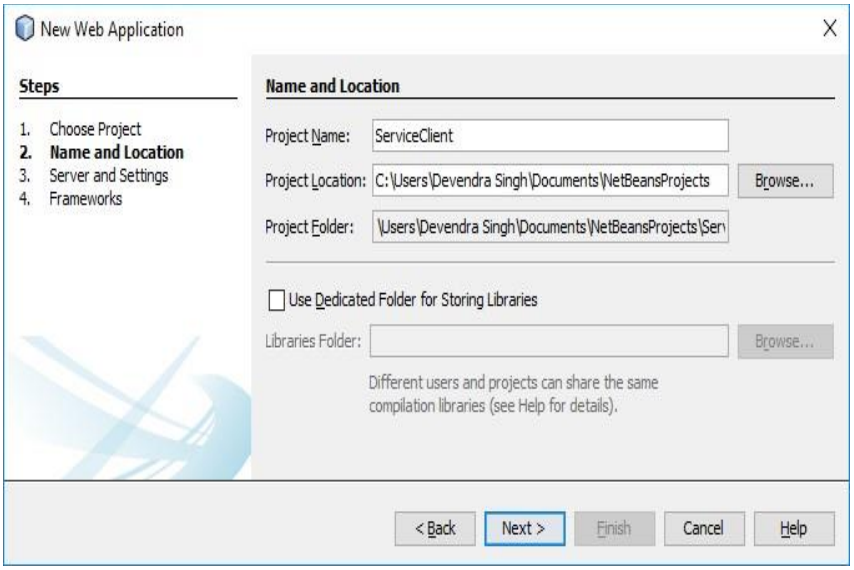
21. After that right click on project name and Deploy it.



22. Now create one more Web Application as Client. After that click on Next and then Finish button.

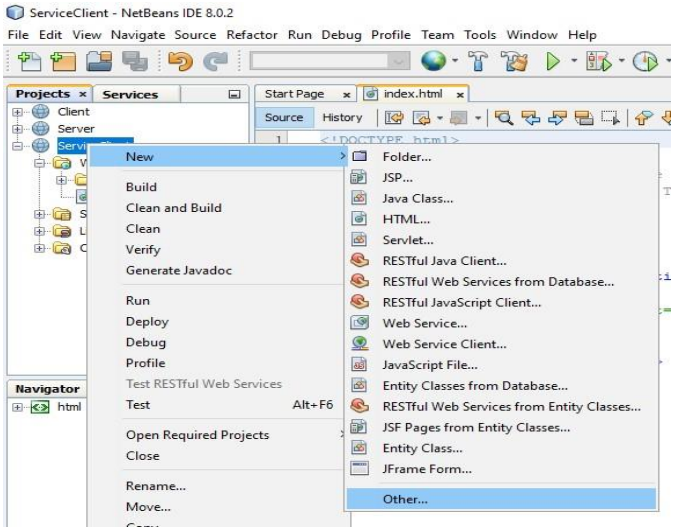


23. Create a Web Application with name ServiceClient.

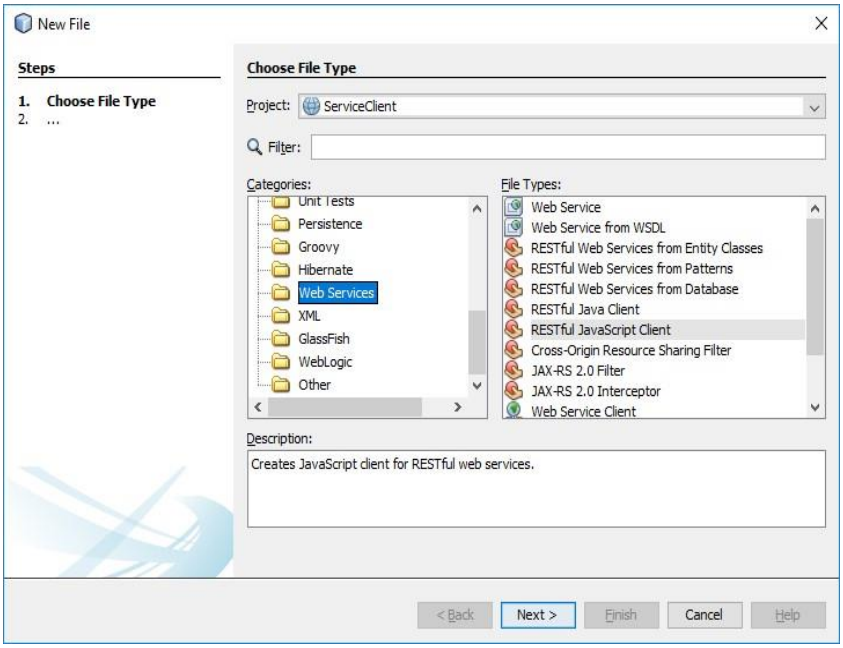


24. Now create a RESTful Java Client.

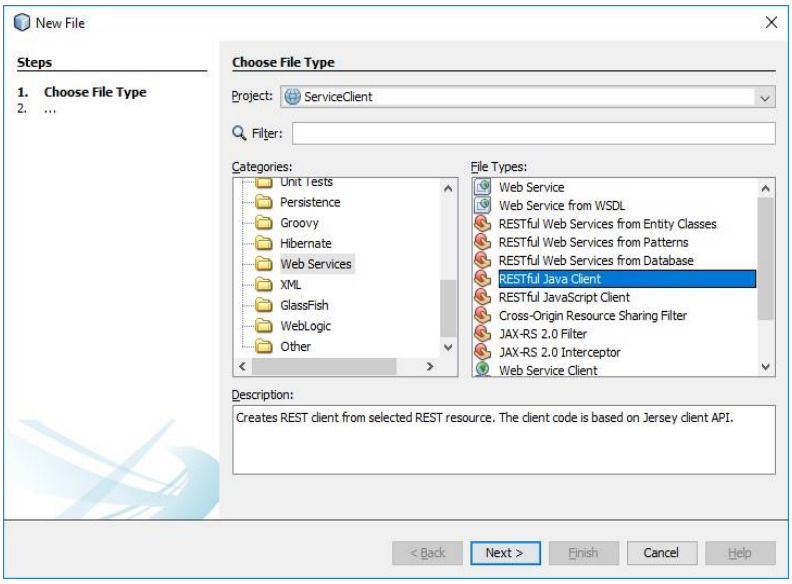
Right click on ServiceClient -> New -> Other.



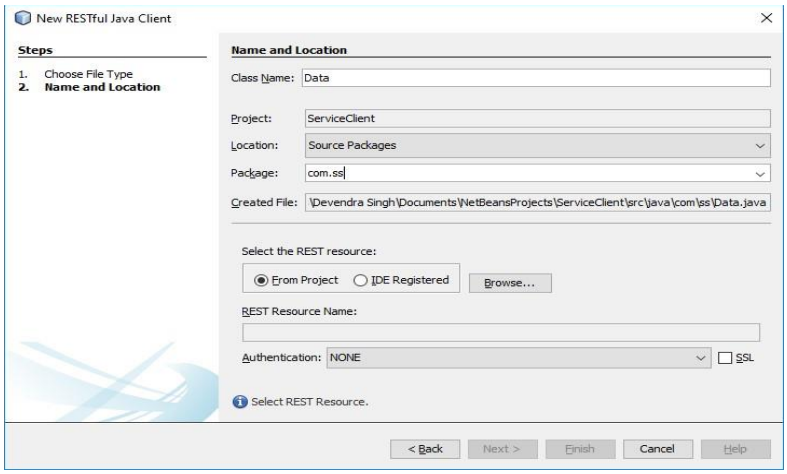
25. Drag down and select Web Services and in side panel select RESTful Java Client.



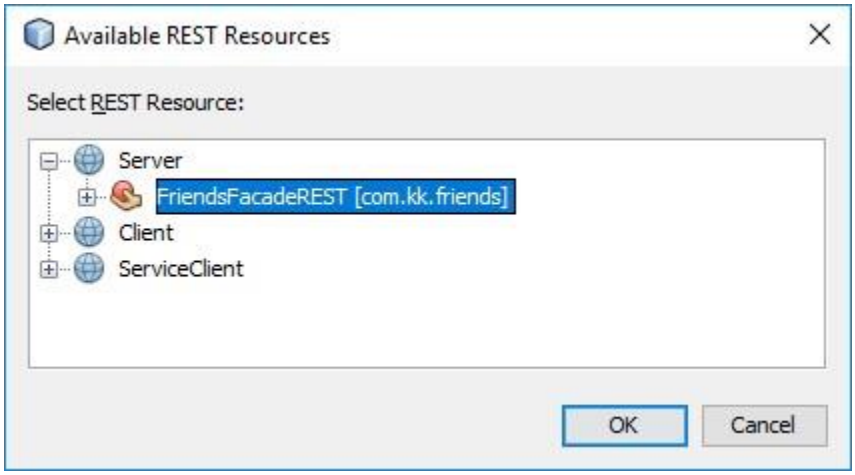
26. After select RESTful Java Client click on Next.



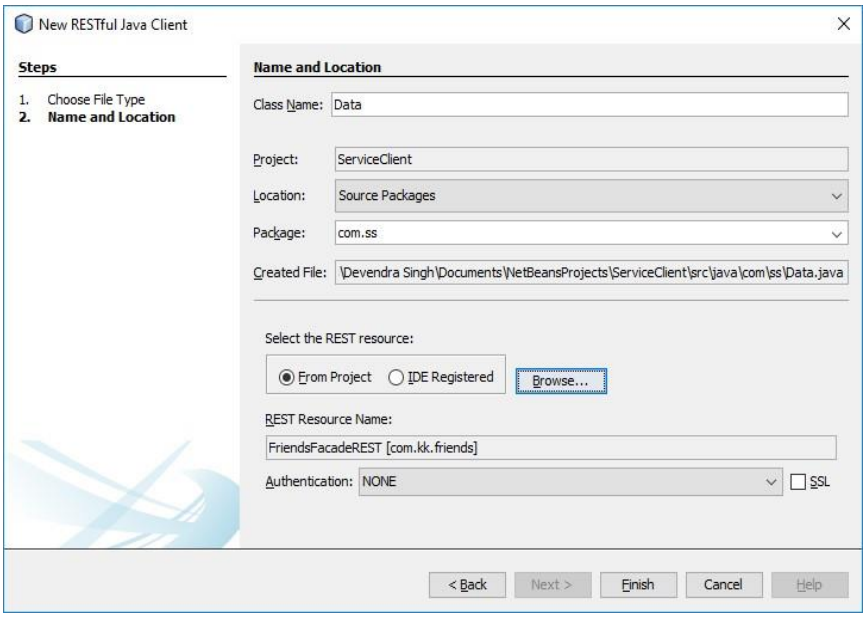
27. Enter following data. Class Name -> Data
Package -> com.ss



28. Now click on Browse button and select the option into the below pic. After select click on OK button.

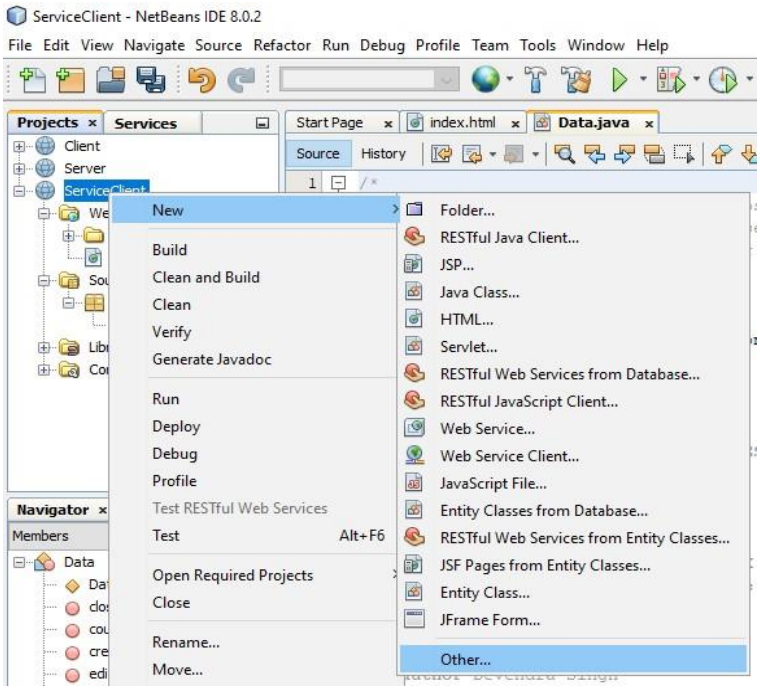


29. Click on Finish.

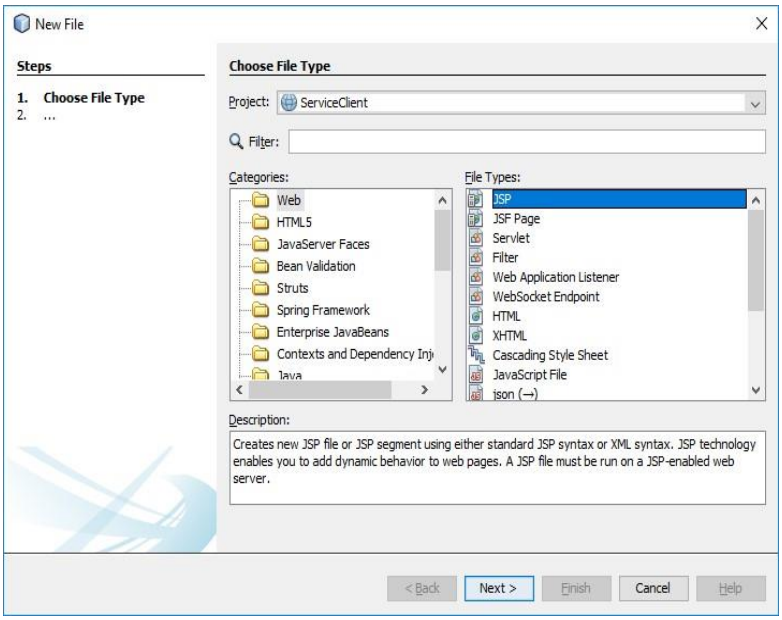


30. Now create a JSP page.

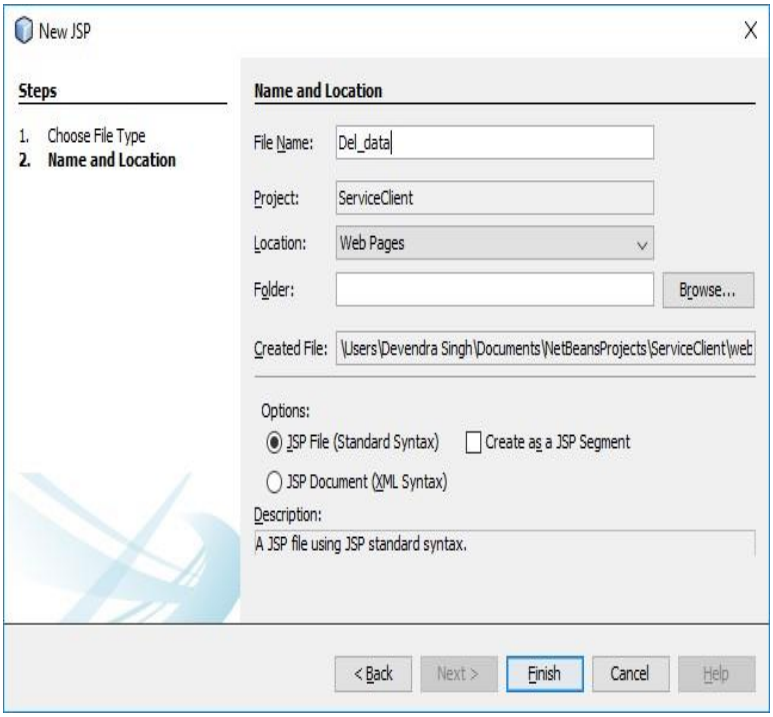
Right click on ServiceClient -> New -> Other



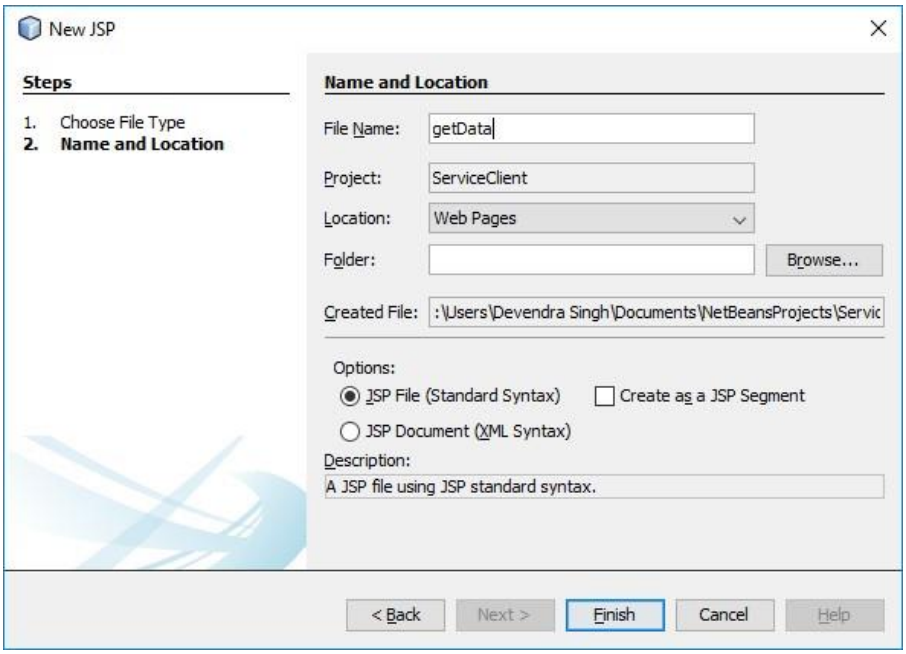
31. Select Web in Categories section -> Select JSP and click on Next button.



32. Enter File Name Del_data and click on Finish button.

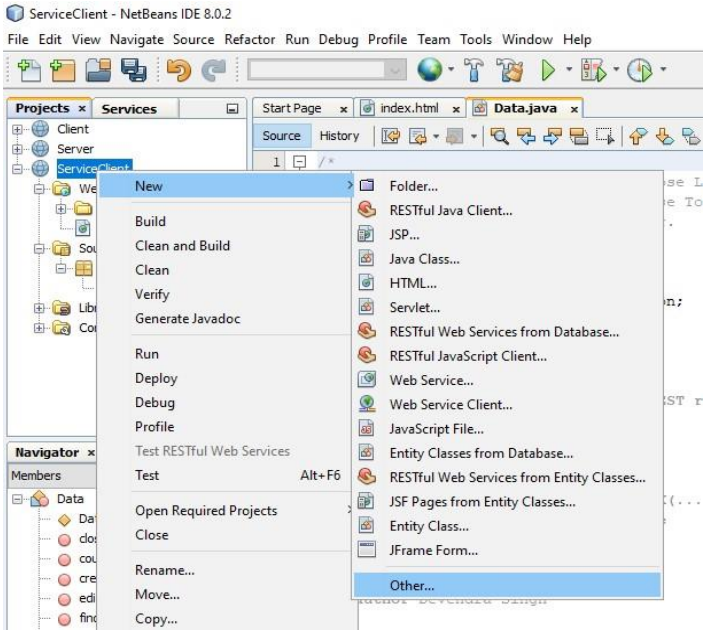


33. Now create one more JSP file by follow the step number 30, 31 & 32. But File Name will be getData.

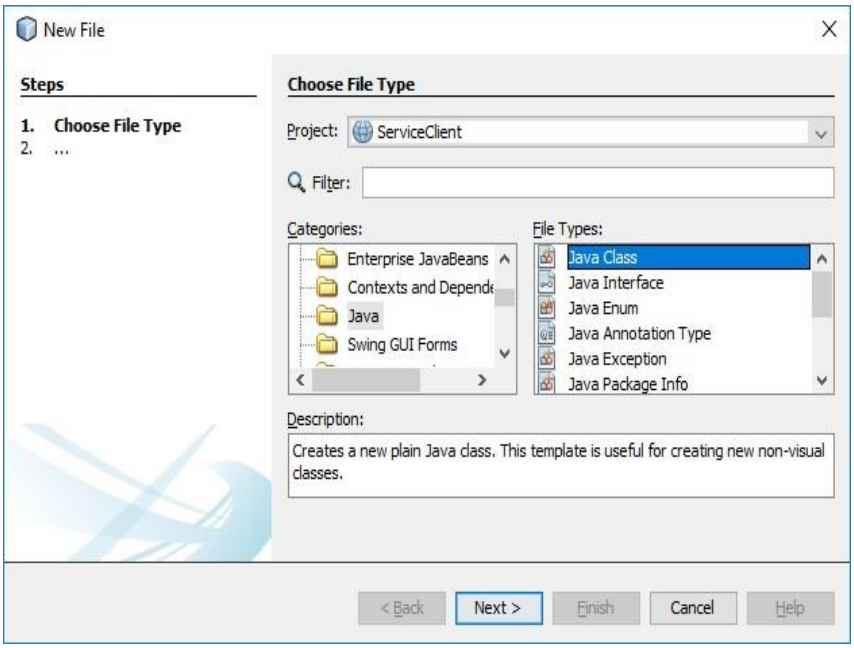


34. Now create a Java class.

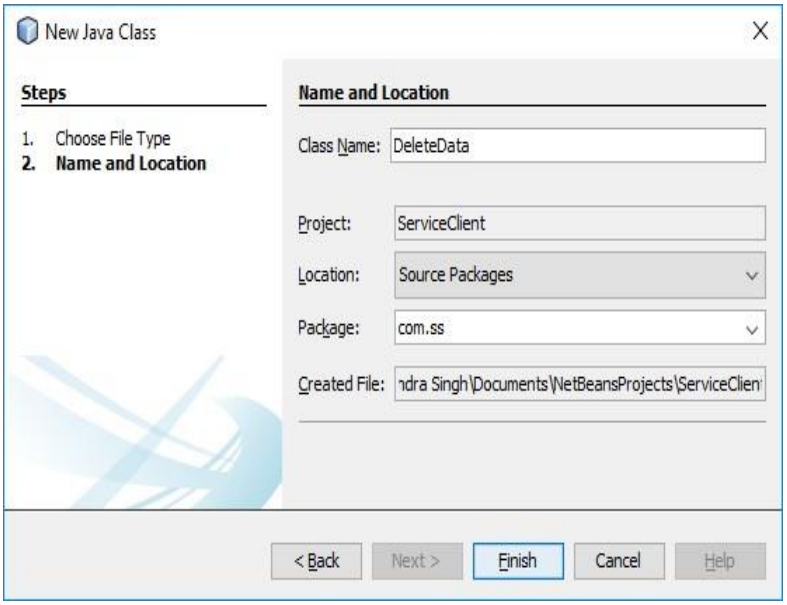
Right click on ServiceClient -> New -> Other



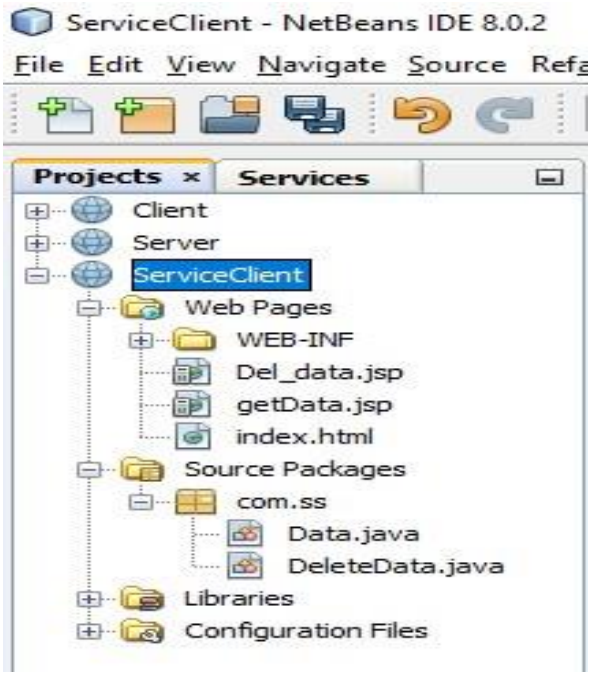
35. In Categories select Java and in File Types select Java Class. Click Next button.



36. Enter Class Name DeleteData and Package com.ss. After that click on Finish.

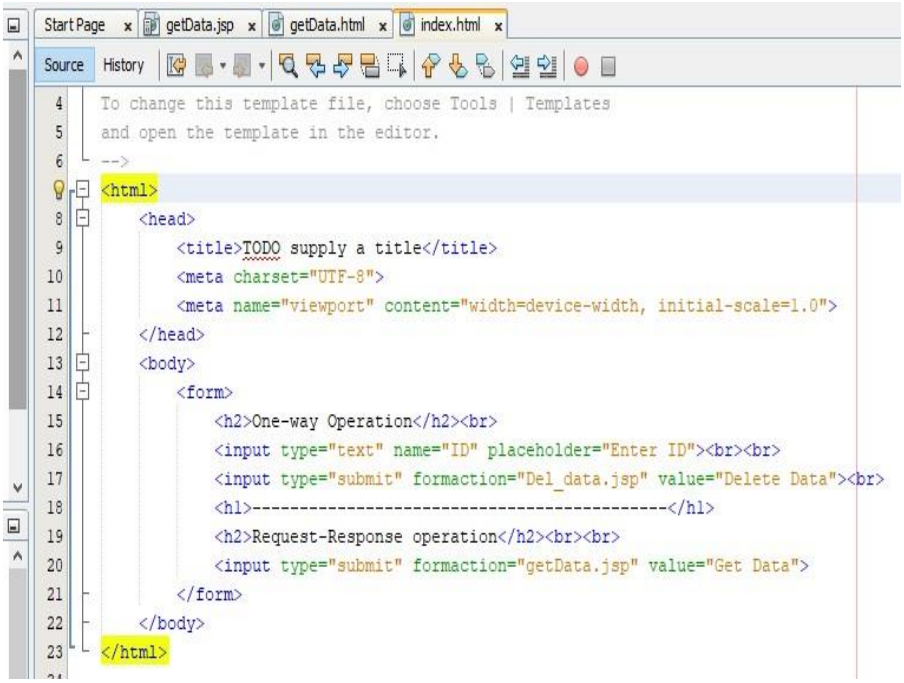


37. Your project file structure will look like below.



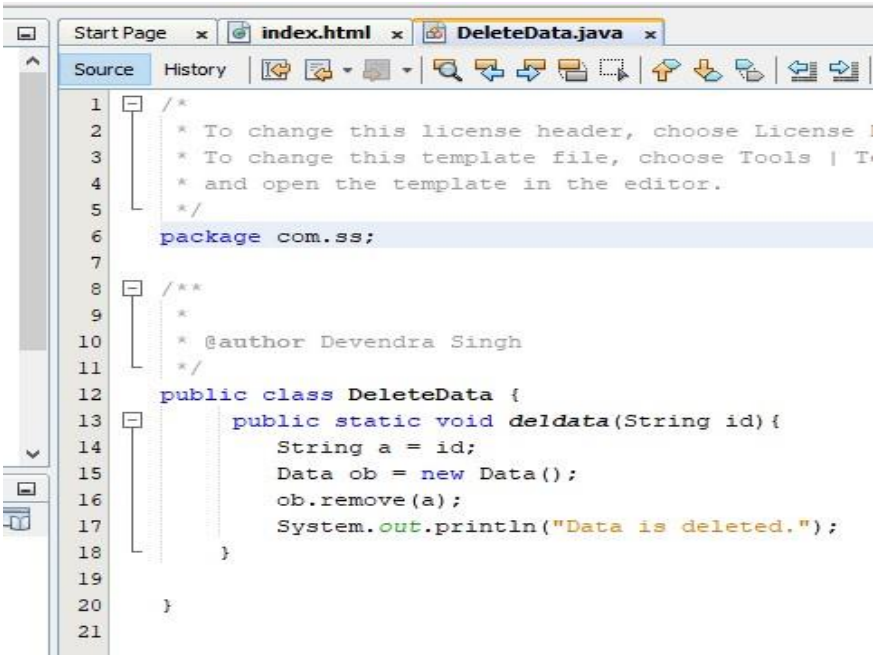
38. Now open the index.html of ServiceClient project by double click on it and add the following code in between body tag.

```
<form>
   <h2>One-way Operation</h2><br>
   <input type="text" name="ID" placeholder="Enter ID"><br><br>
   <input type="submit" formaction="Del_data.jsp" value="Delete
Data"><br>

   <h1>-----------------------------------------</h1>

   <h2>Request-Response operation</h2><br><br>
   <input type="submit" formaction="getData.jsp" value="Get Data"> </form>
```



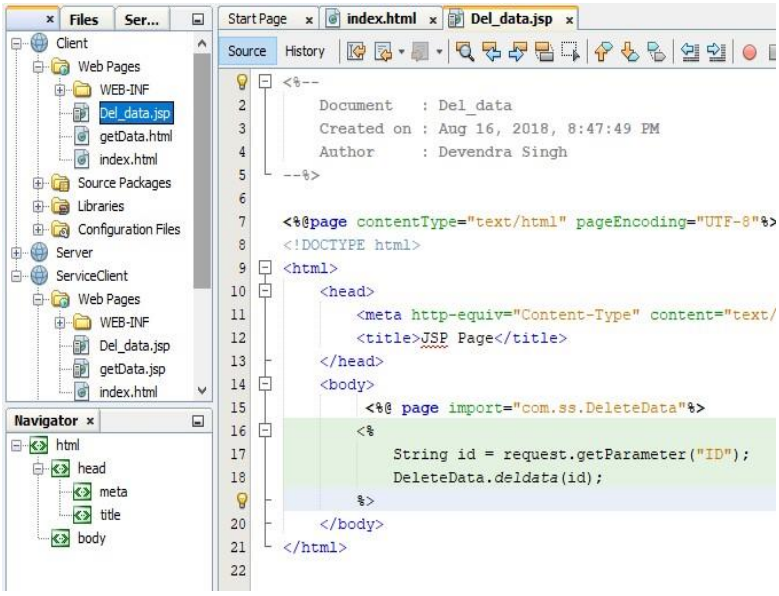
39. Now open DeleteData.java file by double click on it and add the following code in the class and save it by pressing Ctrl+S.

```
public static void deldata(String id){
    String a = id;
    Data ob = new Data();       ob.remove(a);
    System.out.println("Data is deleted.");
  }
```



40. Now open the Del_data.jsp file and replace the contents of body with the following code.

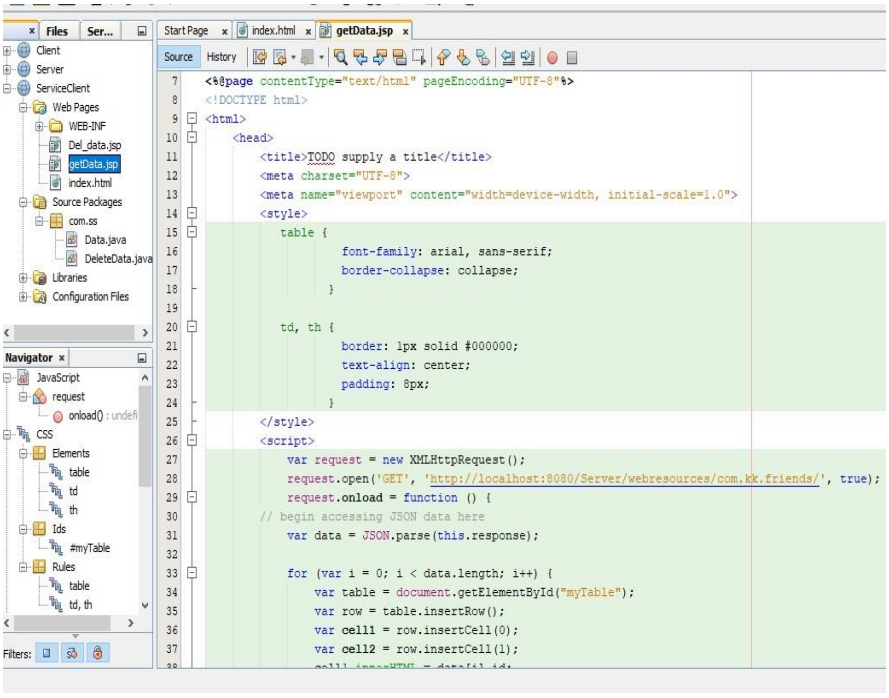
```
<%@ page import="com.ss.DeleteData"%>
    <%
      String id = request.getParameter("ID");
      DeleteData.deldata(id);
    %>
```



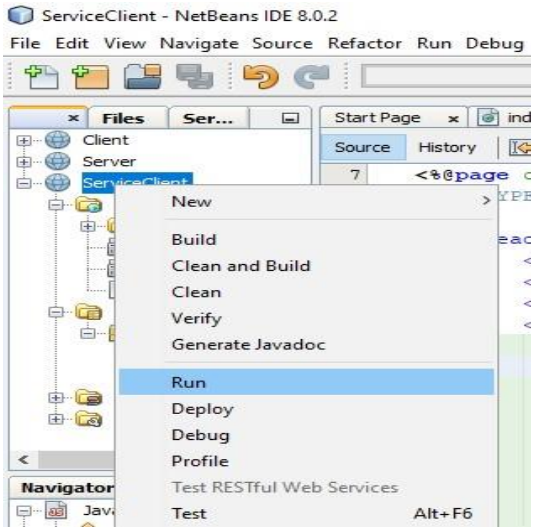
41. Now open the getData.jsp file and replace the contents of html tag with the following code and save it.

```
<head>
    <title>TODO supply a title</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initialscale=1.0">
    <style>        table {                font-
family: arial, sans-serif;
            border-collapse: collapse;
          }

      td, th {
            border: 1px solid #000000;
            text-align: center;
            padding: 8px;
          }
    </style>
    <script>
      var request = new XMLHttpRequest();
      request.open('GET',
'http://localhost:8080/Server/webresources/com.kk.friends/', true);
request.onload = function () {       // begin accessing JSON data here
var data = JSON.parse(this.response);

      for (var i = 0; i < data.length; i++) {
          var table = document.getElementById("myTable");
        var row = table.insertRow();
var cell1 = row.insertCell(0);            var cell2
= row.insertCell(1);            cell1.innerHTML
= data[i].id;
        cell2.innerHTML = data[i].firstname;
      }
    };

    request.send();
```

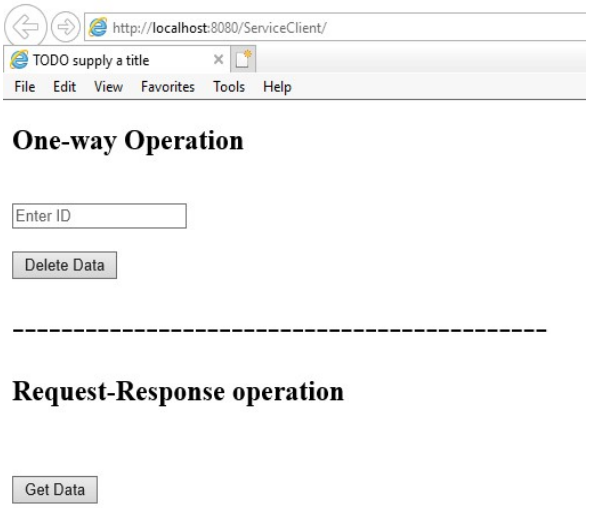
```
    </script>

</head>
<body>
    <table id="myTable">
        <tr>
            <th> ID</th>
            <th>NAME</th>
        </tr>
    </table>

</body>
```



42. Now Run the ServiceClient project.



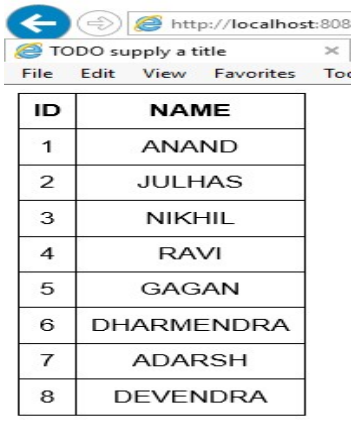
43. On run the project following window will open in browser.



If you will click on Delete Data button, record of entered ID will be deleted.

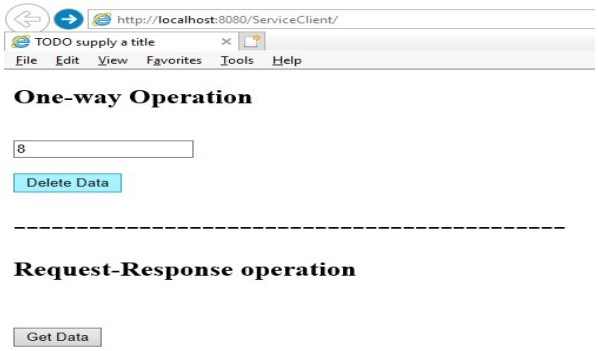
If you will click on Get Data button Request for the data will be send and it will return the data as response. Hence it is two way operation.

44. By click on Get Data button.



ID	NAME
1	ANAND
2	JULHAS
3	NIKHIL
4	RAVI
5	GAGAN
6	DHARMENDRA
7	ADARSH
8	DEVENDRA

45. Entering ID 8 and clicking on Delete Data button.

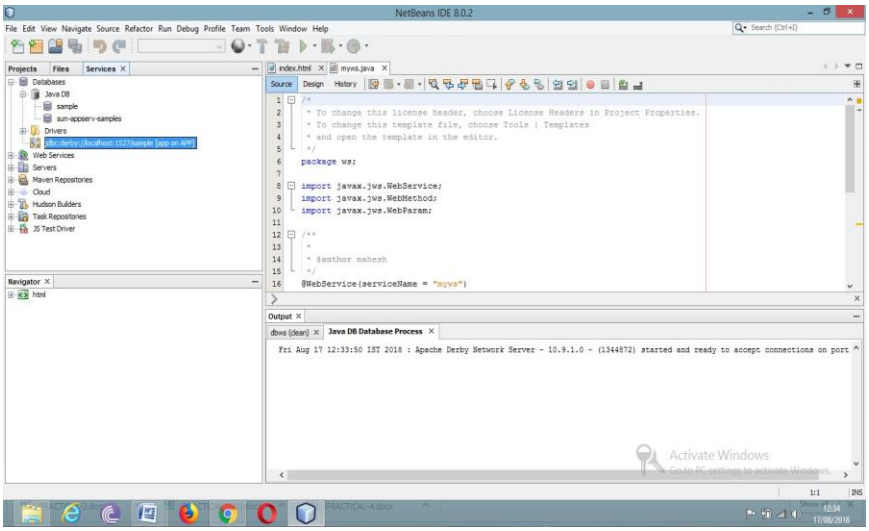


46. Now go back and again click on Get Data button. Refresh the page, You will see data with id number 8 is deleted.

ID	NAME
1	ANAND
2	JULHAS
3	NIKHIL
4	RAVI
5	GAGAN
6	DHARMENDRA
7	ADARSH

PRACTICAL 2 (Another approach)

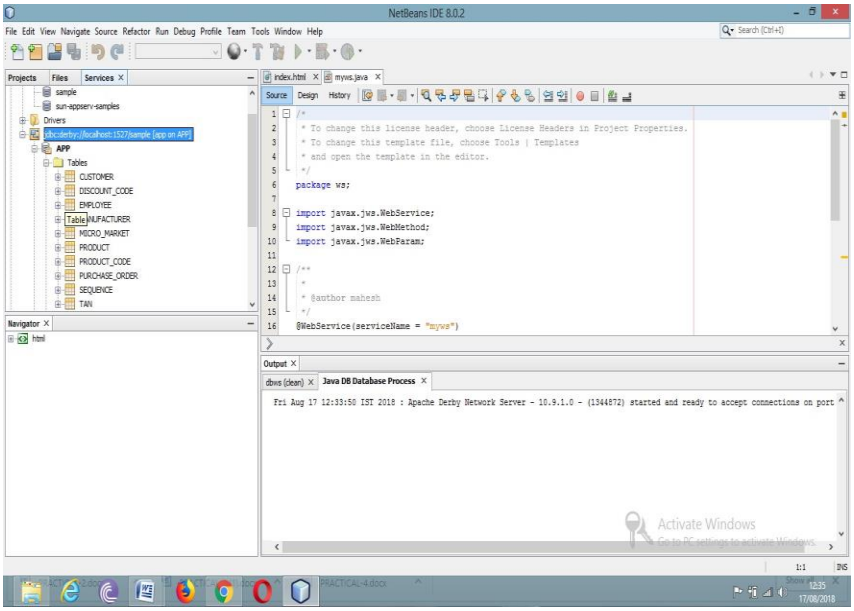
Create new Web Project give it name pract_2
Press next
Press Finish
Right Click on Project pract_2 and select new then select web service
Give
 Name to web service as myws
Give package name as ws
Press Finish
Go to service
Select java DB
Right click on java DB select Start server
Right click on connection string and select connect



Expand connection string

It will show APP

Expand APP it will show table. Right click on table and select create table.



Give name to table as tan

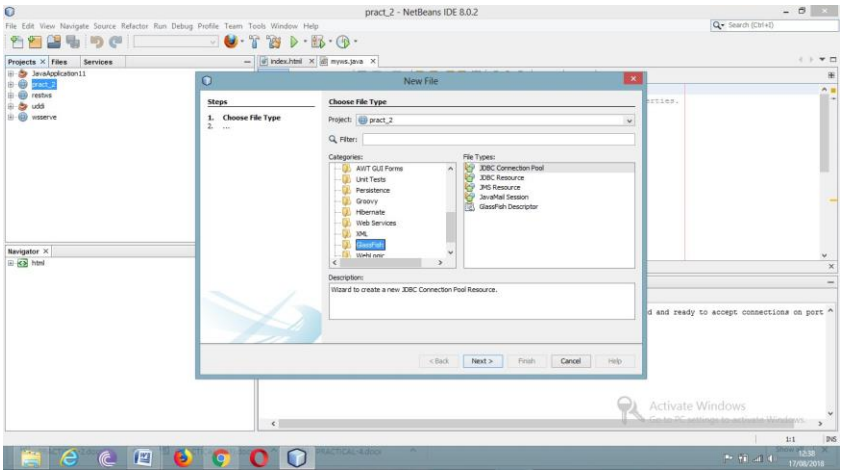
Then select add column

I have given name to table as Tan with column as rn and name

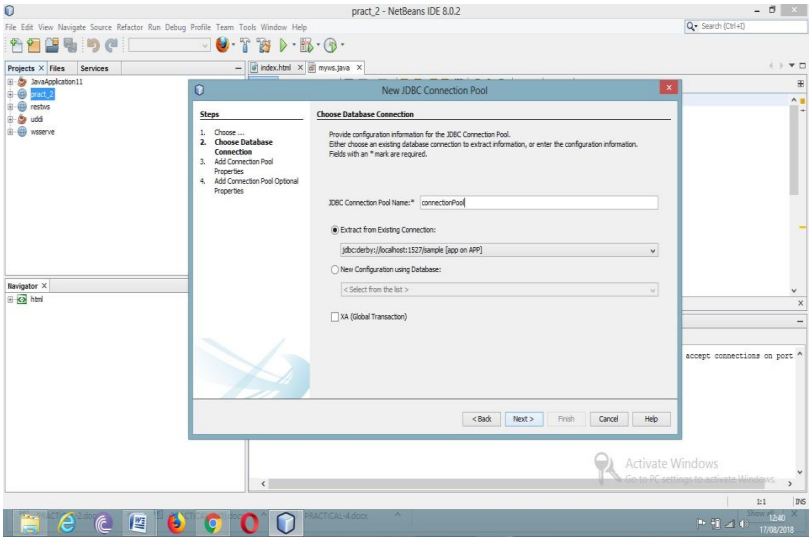
Come back to project

Right click Project name pract_2 select new select others in it select glassfish

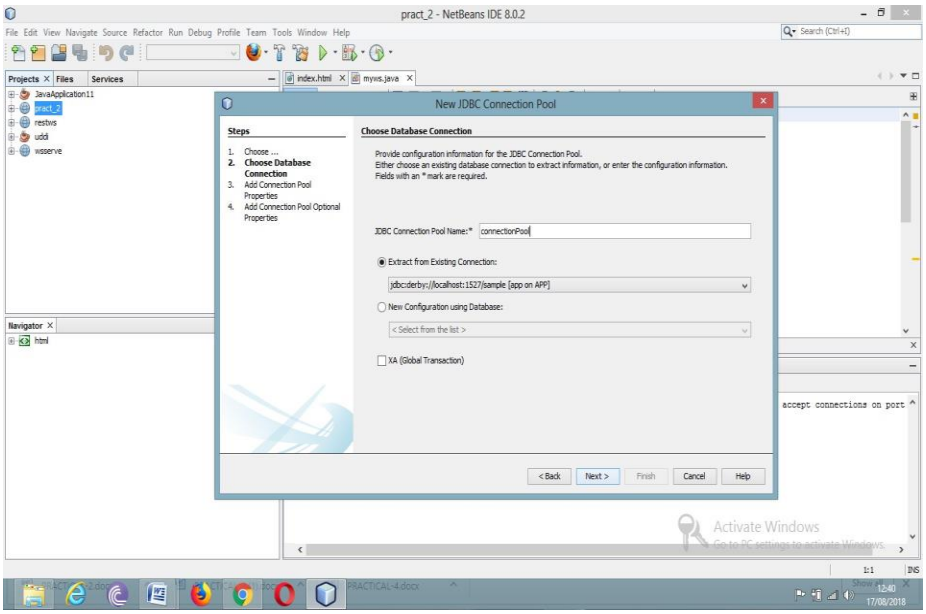
server In that select jdbc connection pool



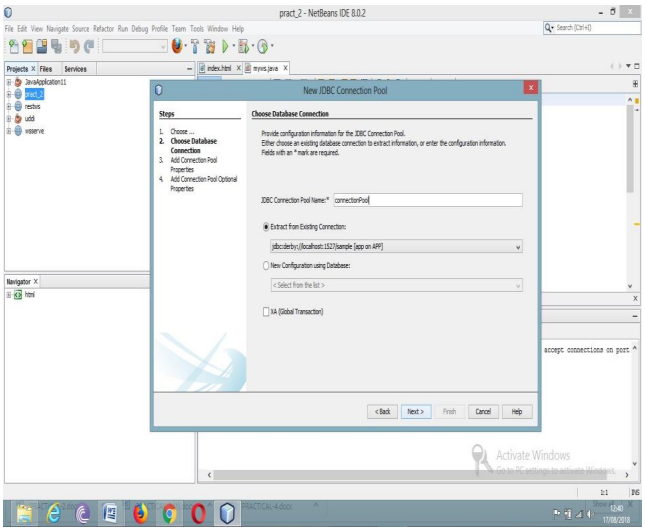
Press next



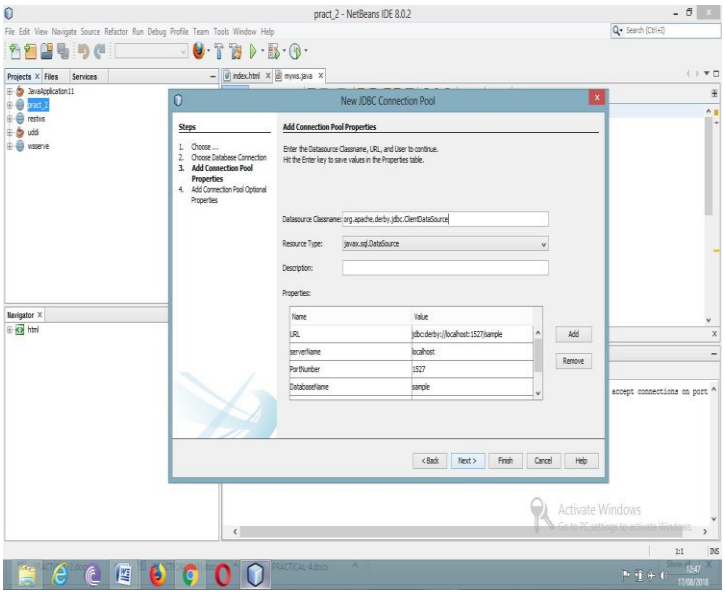
Press next



Press next



Press next

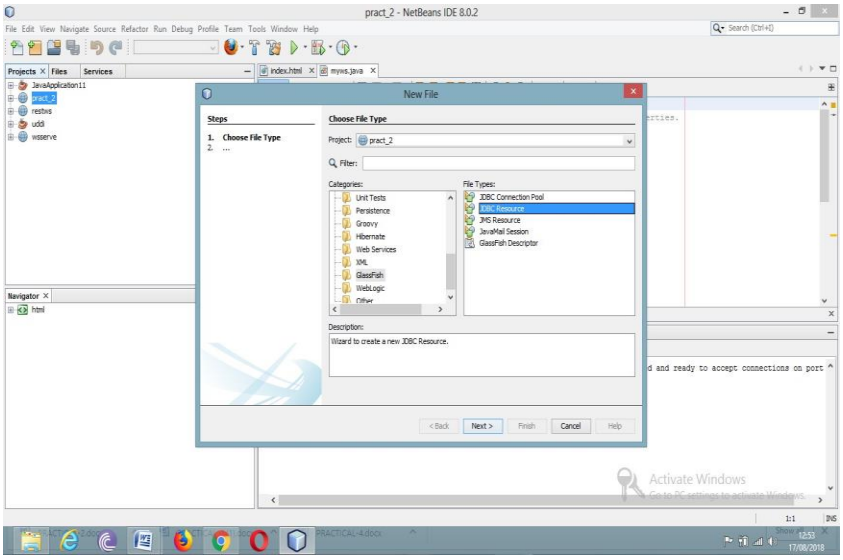


Press next

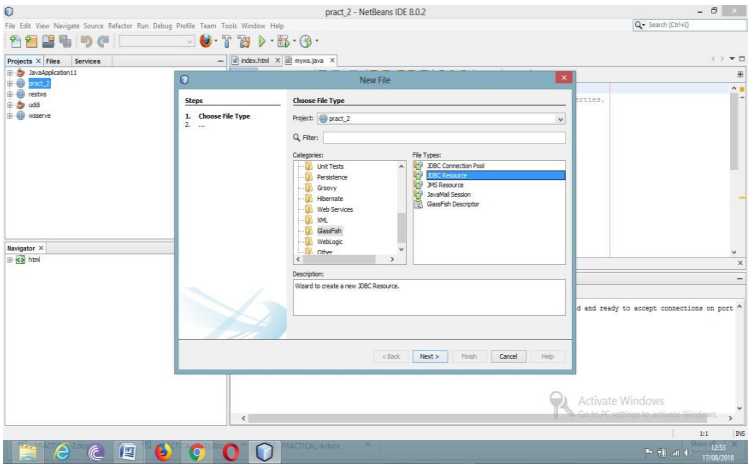
Press finish

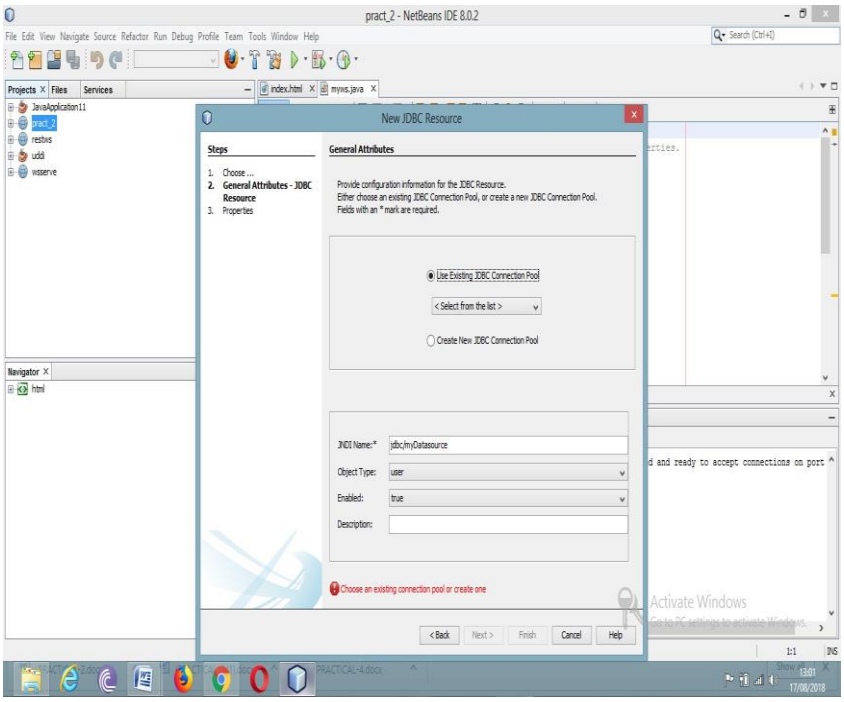
Right click project name select new select other

Select glassfish Select jdbc resource



Press next

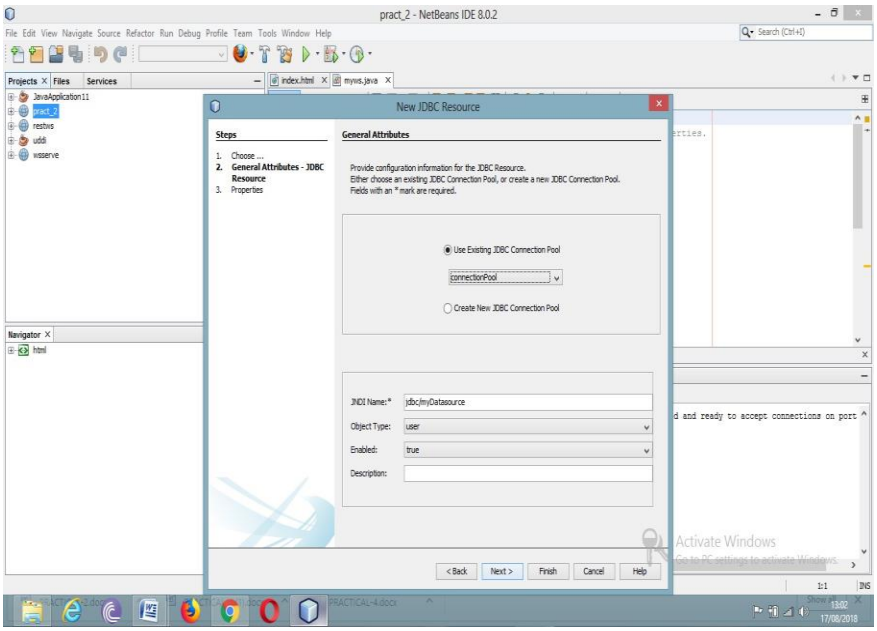




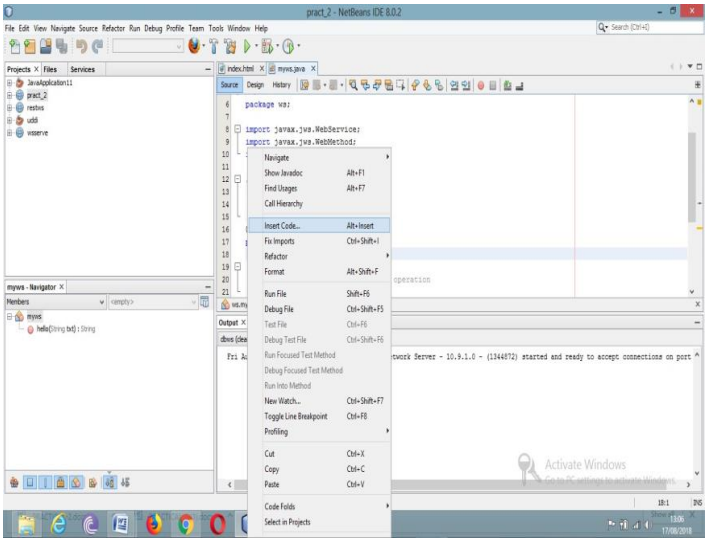
Press next

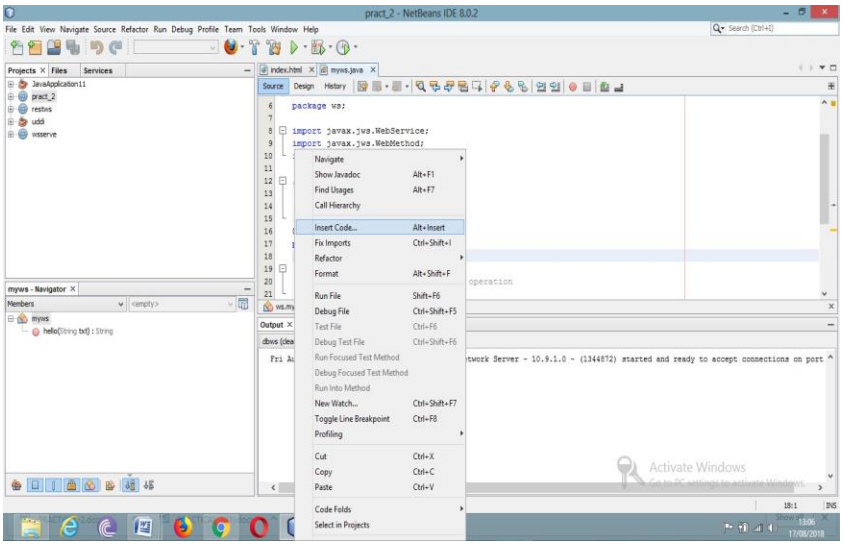
Click on existing connection pool

Select from combobox connection pool

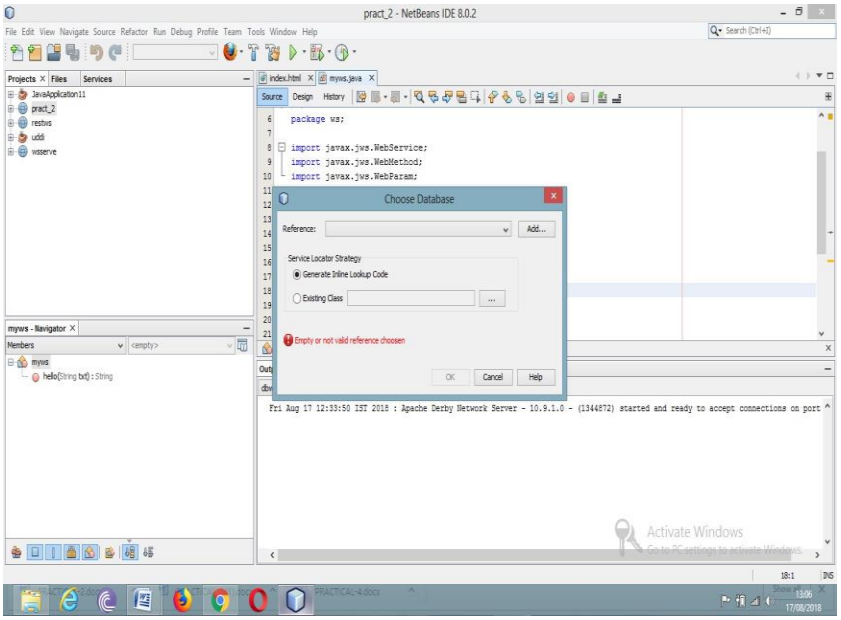


Change JNDI name to jdbc/mydb
Press next
Press finish
It will open file myws.java
Right click on line number 18 (inside class myws)
Select insert code



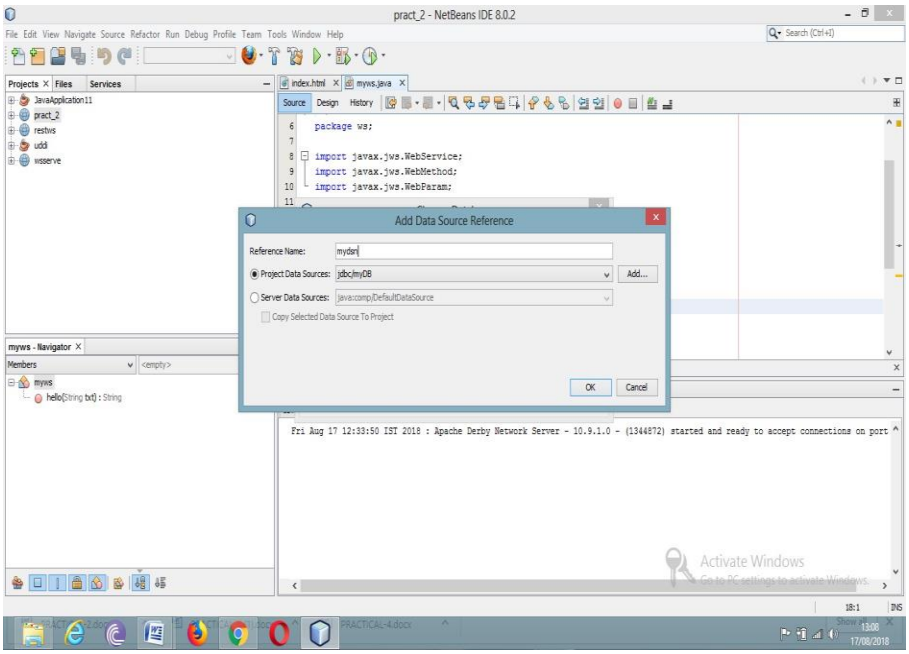


Select use database



Click on add

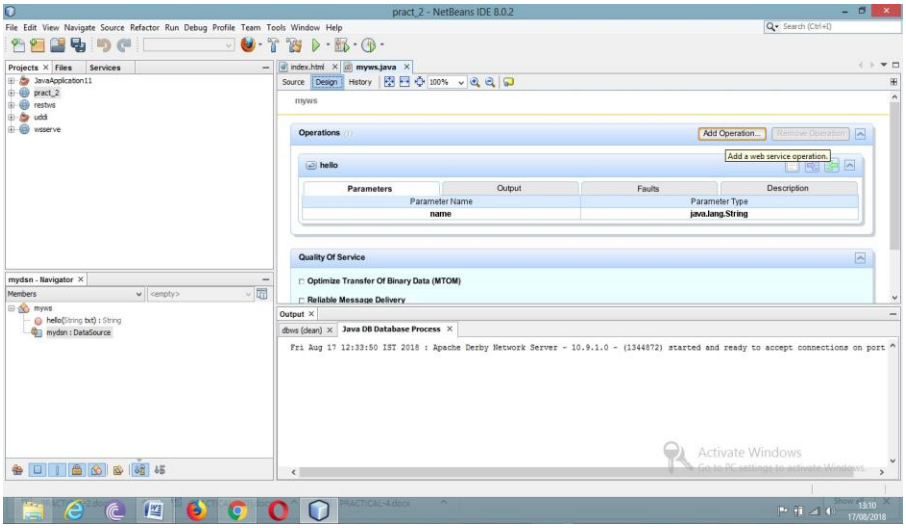
Give any name I have given my dsn



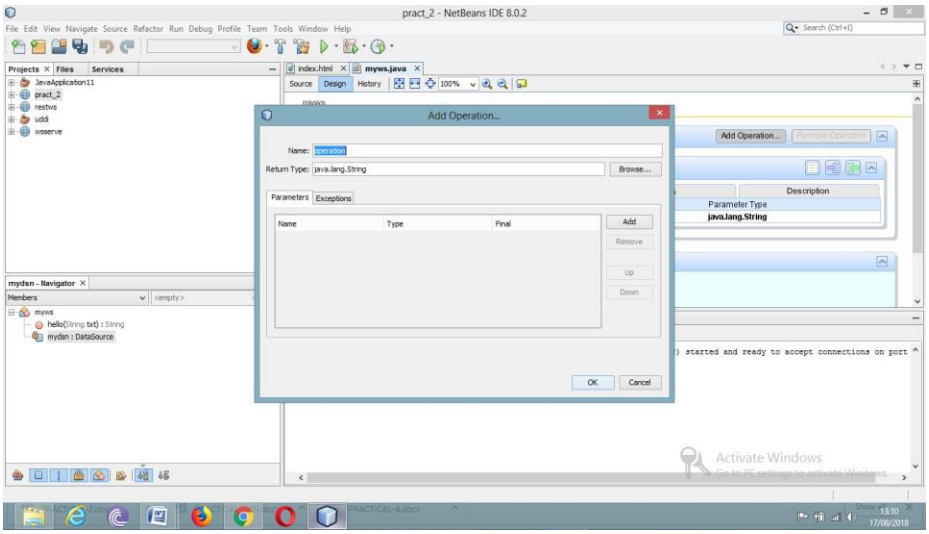
Press ok press ok

Now click on design

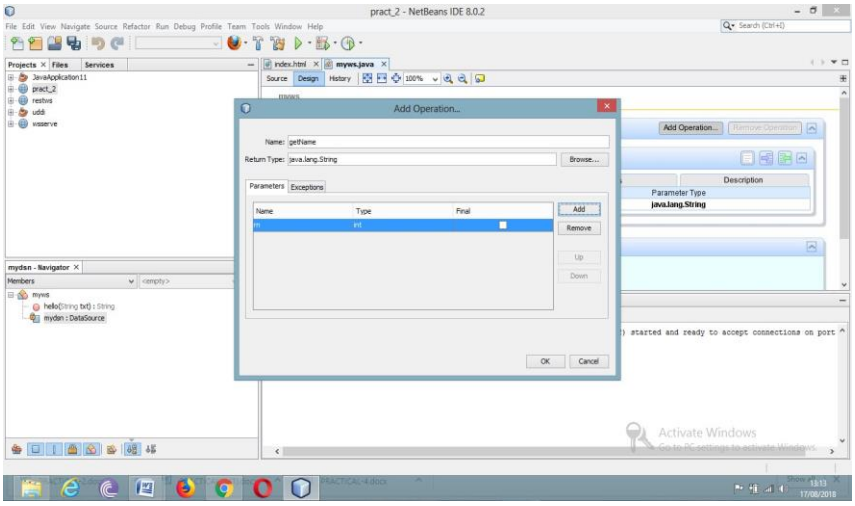
Select add operation



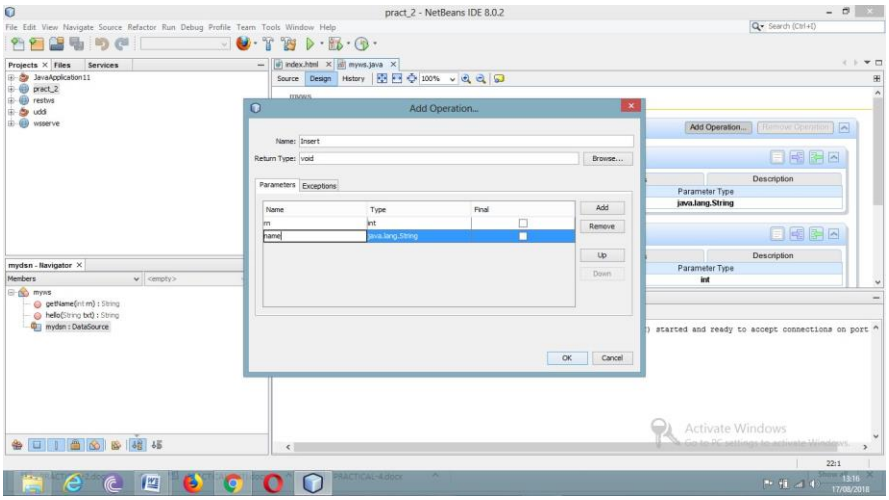
It will open



We want a two way web service which takes rn from user and return name
So give name as getName and return type is String
And click on add
And define parameter
My parameter name is rn and its type is int

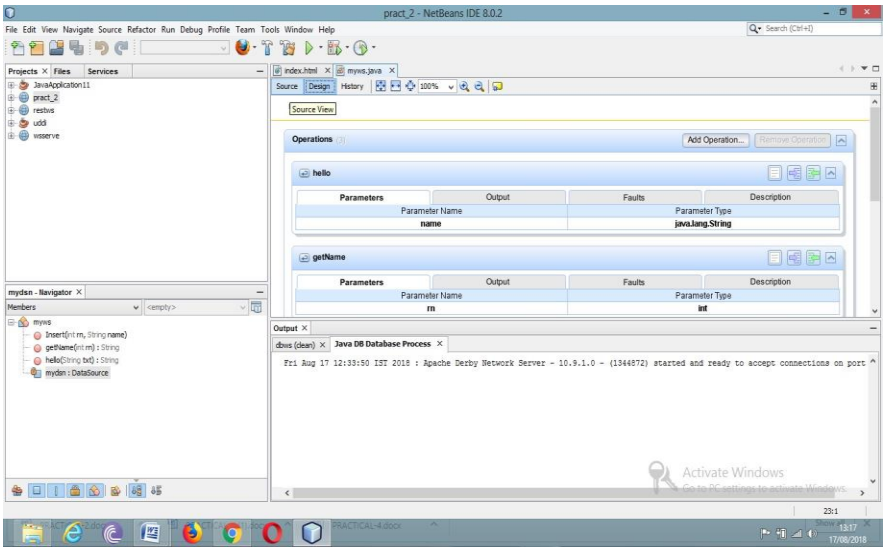


Press ok
Very similar way define one way function which insert roll no and name in database
Tan
So again click on add operation give name as insert and return type as void
Click on add
Then give parameter as rn with type as int
Again press add
Give parameter as name and type as string

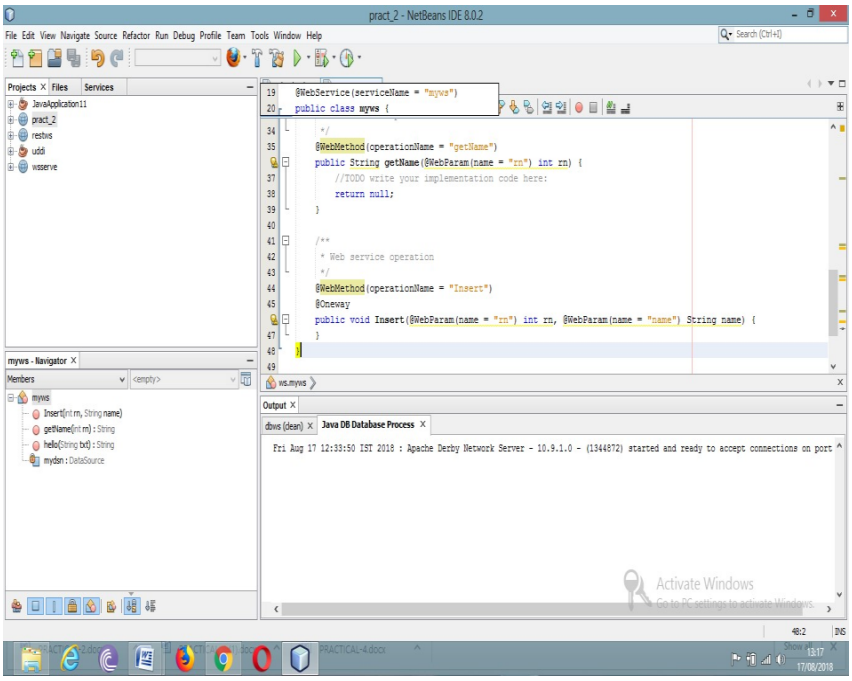


Press ok

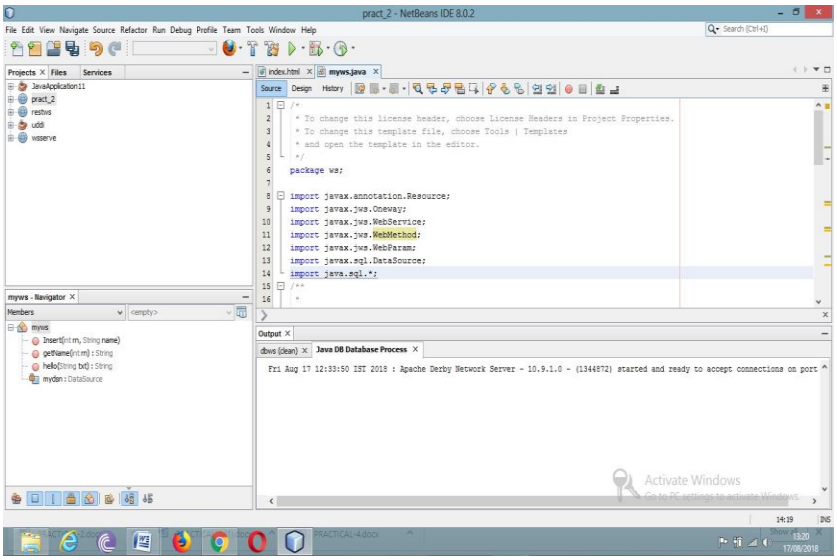
Now click on source



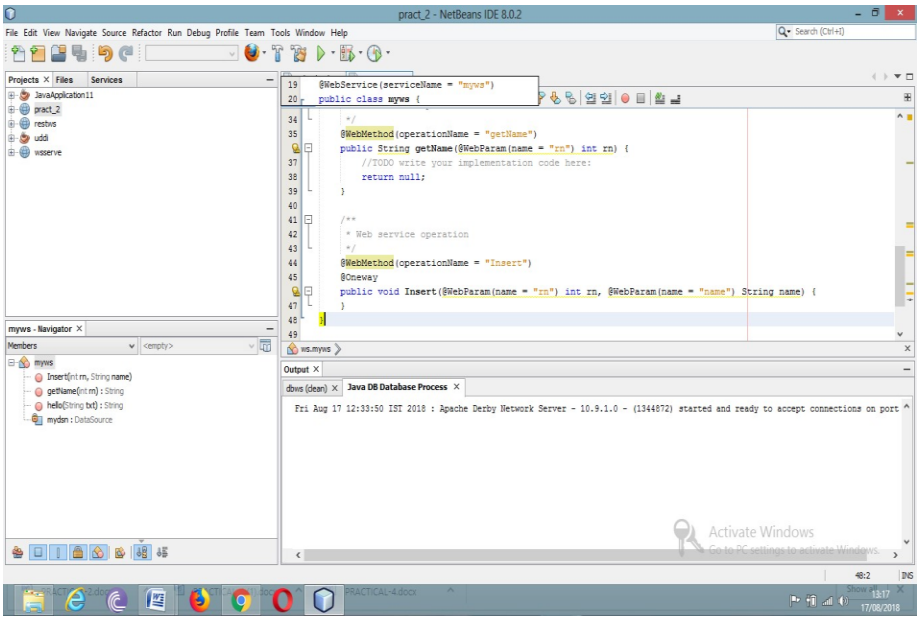
It will show you code (Functions you have created)



As we are working with database so we need to import java.sql.*;
So go on the top of same file and add import java.sql.*; statement



Now come to function getName()
Go inside it and remove the line “todo code here”



And type here

```
try{
        Connection c=mydsn.getConnection();
        PreparedStatement ps=c.prepareStatement("select * from tan where rn=?");
        ps.setInt(1, rn);
        ResultSet r=ps.executeQuery();
        if(r.next())                return
r.getString(2);          else

           return "No name found";


        }catch(Exception e)
           {return "error";}
```

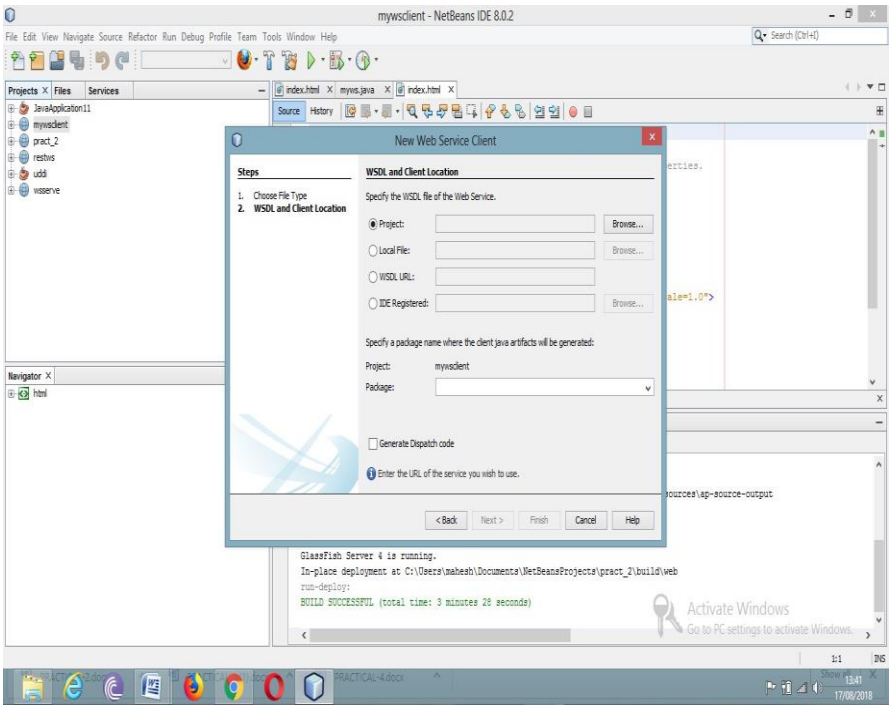
Now save it

Very similar way write the code for Insert Function (One way)
Right Click on Project name pract_2
Select deploy
Once Deployed our web service is ready

Now We will Create Client (Servlet)
So create new Project (web java)
Select new project select new select web java
Give it name mywsclient Press next Press finish

Now right click on project name mywsclient select

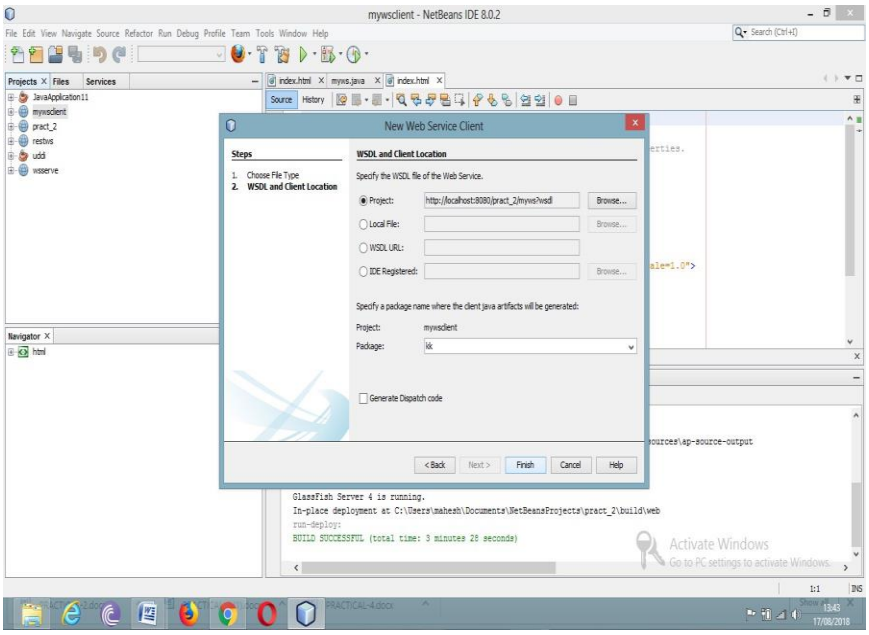
new select web service client



click on Project then select brows

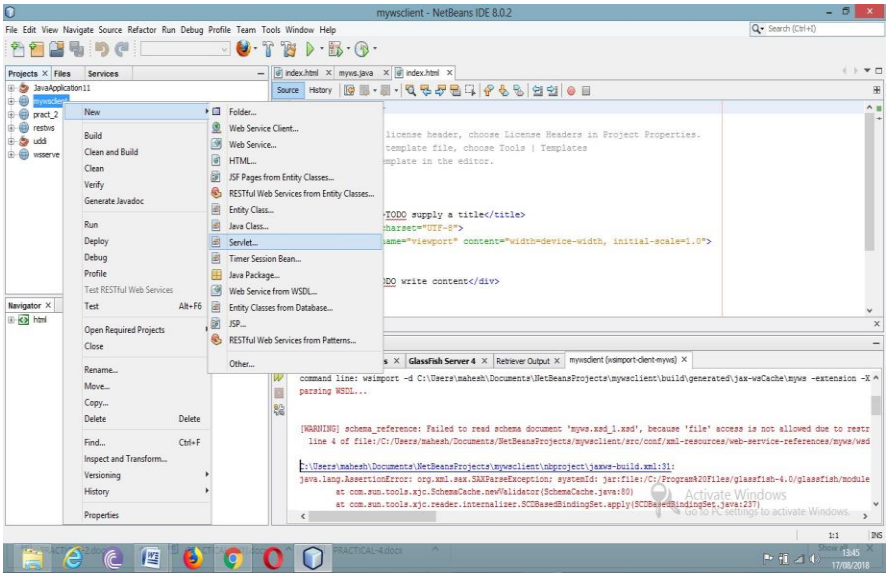
expand pract_2 select myws and press

ok Give package name kk



Press finish

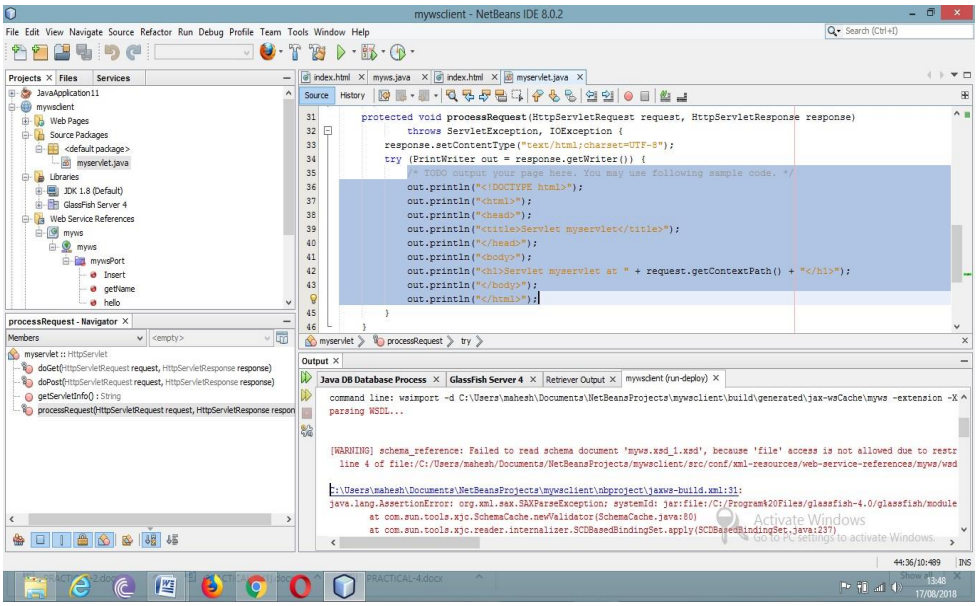
Now right click on mywsclient project select new select servlet



Give servlet name as myservlet

Press finish

Now remove lines from number 34 to 42 of Process request function of myservlet



Now the lines which we have removed i.e. from 34 to 42 ,type there

out.println(getName(1));

Now on the project window
Expand web service reference folder You will

find there getName function

Simply drag it in side myservlet.
It will create code automatically.
Now deploy mywsclient and run mywsclient by right clicking on the code of mywsclient

PRACTICAL-4

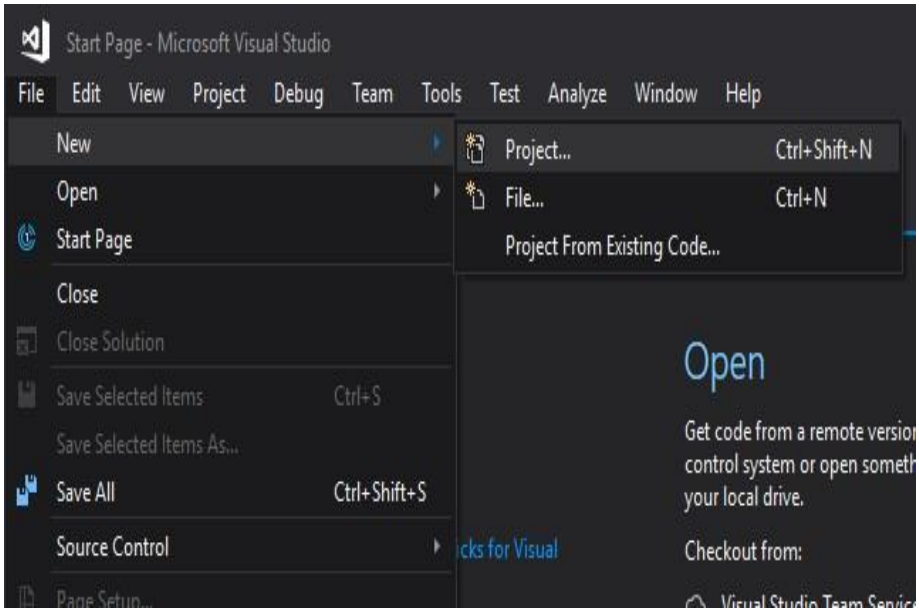
Aim: Develop client which consumes web services developed in different platform.

Requirement:

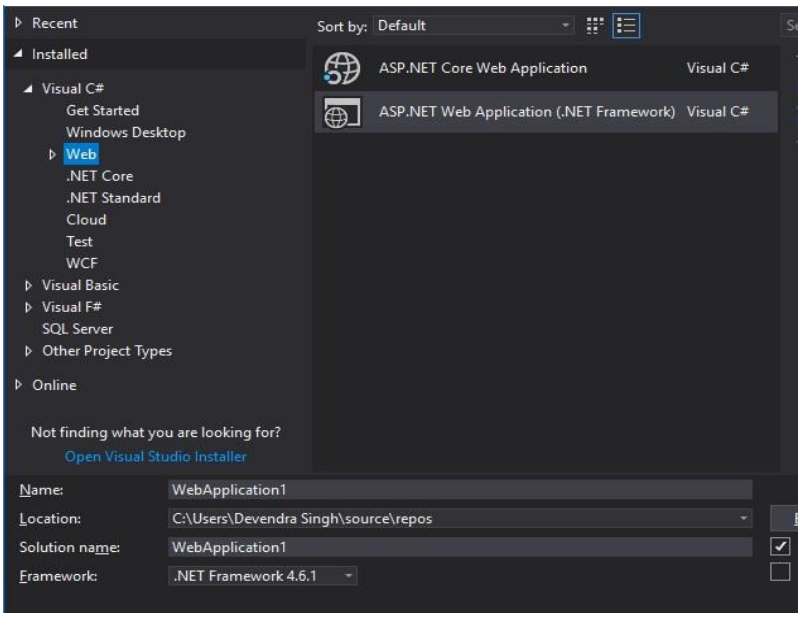
1. Visual Studio Community 2017
2. Version : 15.8 or latest

In this practical we are creating Web Service in Visual Studio ant then we will consume it in NetBeans.

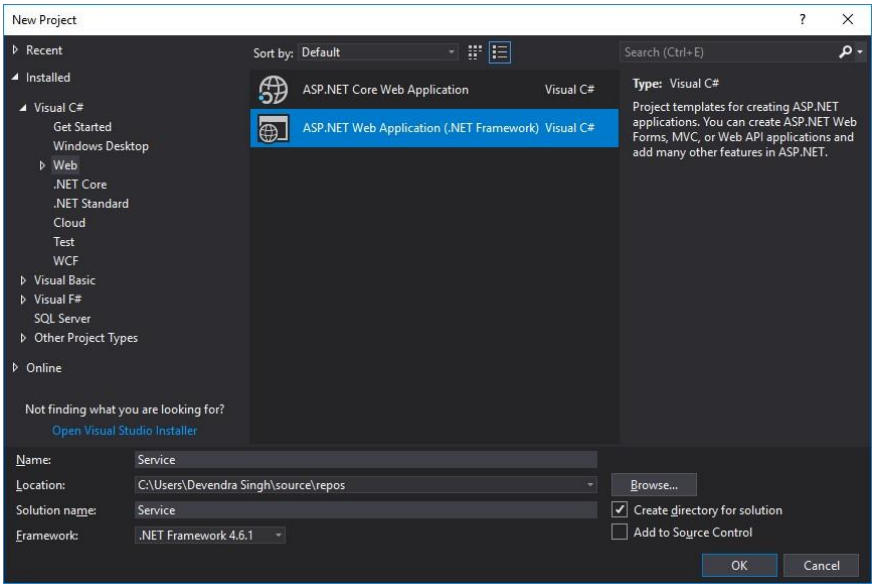
1. Open Visual Studio IDE and click on File.
   File -> New -> Project



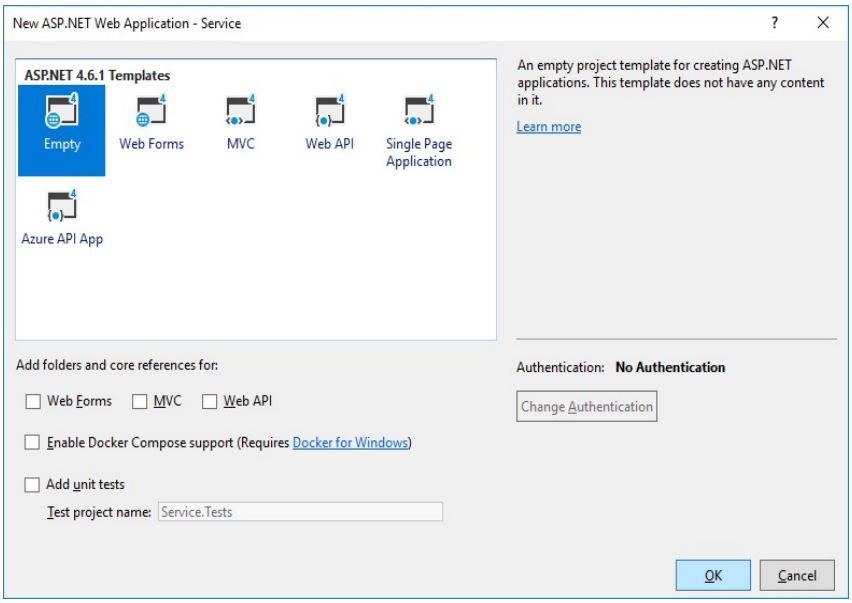
2. Click on Web.



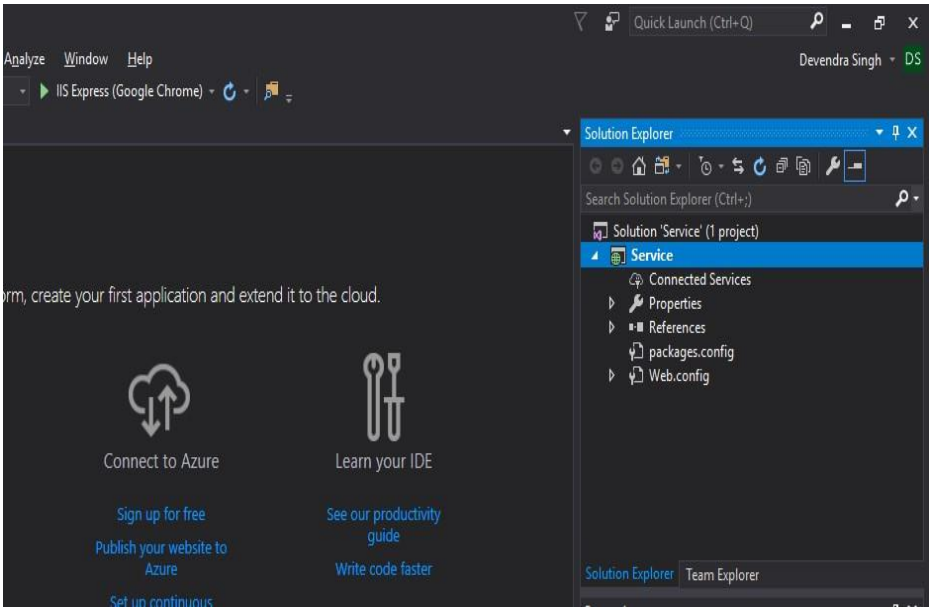
3. Select ASP.NET Web Application and give Name as Service. After that click on OK button.



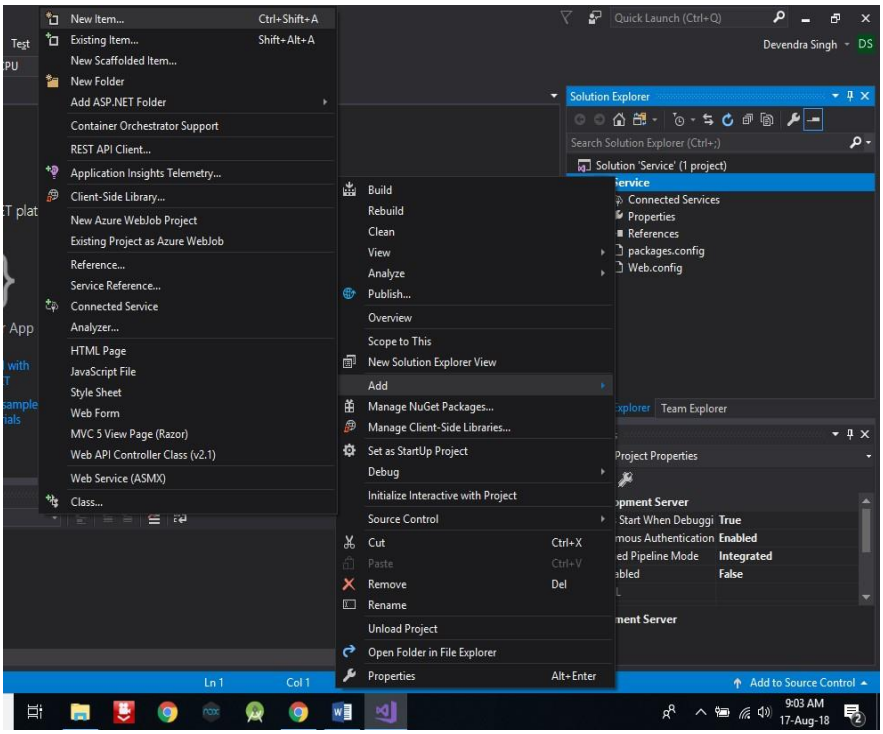
4. Select Empty and click on OK button.



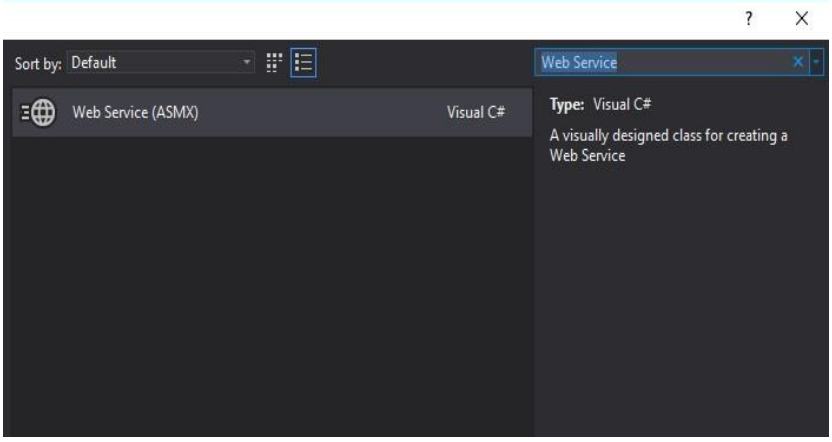
5. Now you can see, on right side in Solution Explorer Service project is created.



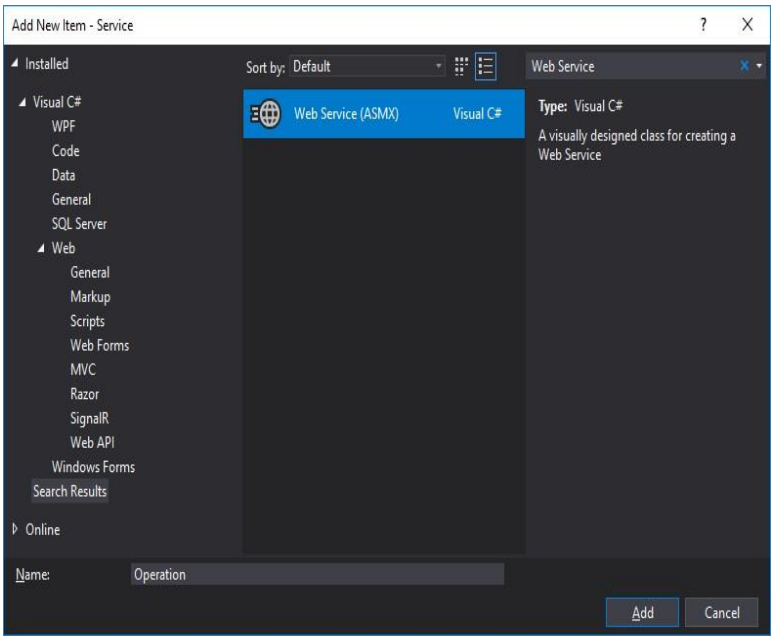
6. Right click on Service -> Add -> New Item.



7. Search for Web Service.

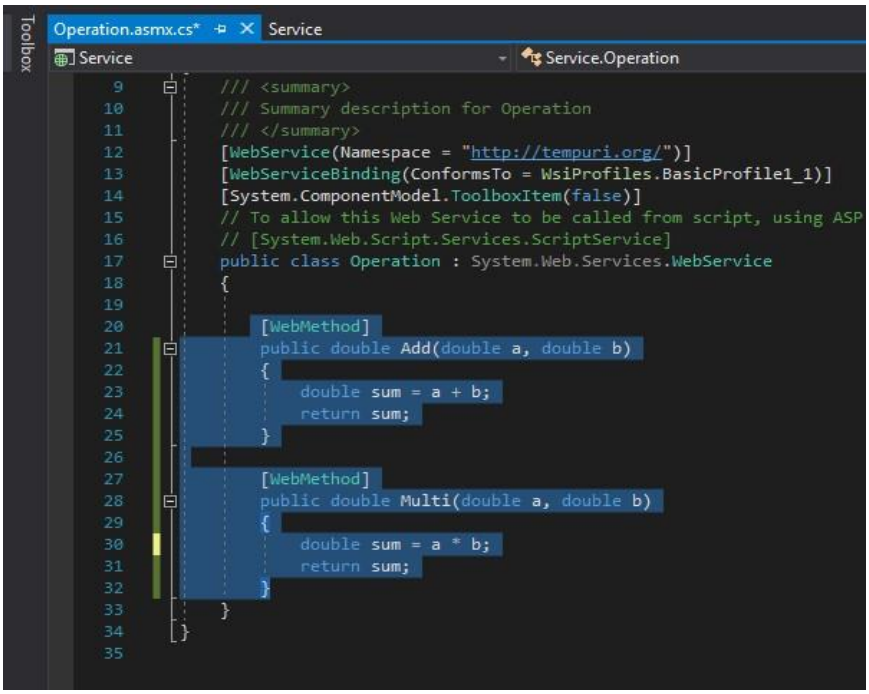


8. Select Web Service and give Name as Operation. After then click on Add button.



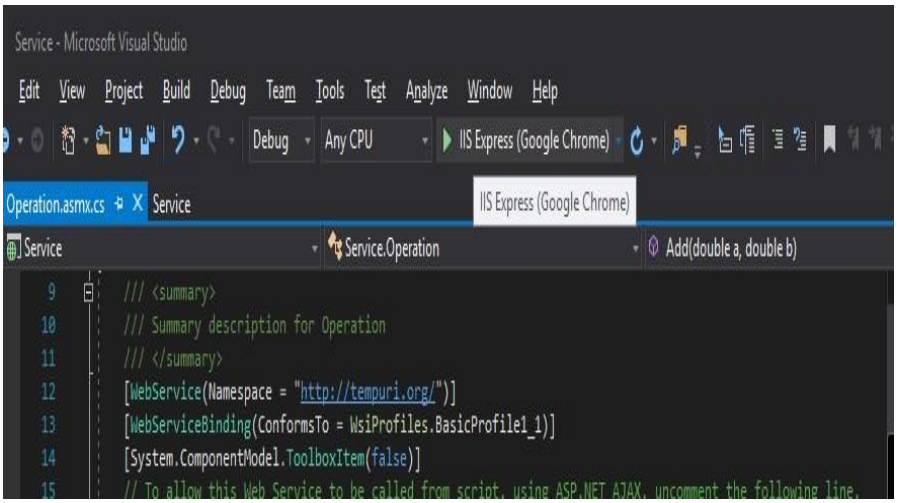
9. After click on Add button, Operaion.asmx.cs file will be automatically open otherwise open it from Solution Explorer and Add the following code into Class Operation.

```
    [WebMethod]       public double
Add(double a, double b)
    {
        double sum = a + b;
return sum;
    }

    [WebMethod]
    public double Multi(double a, double b)
    {
        double sum = a * b;
        return s
 }
```

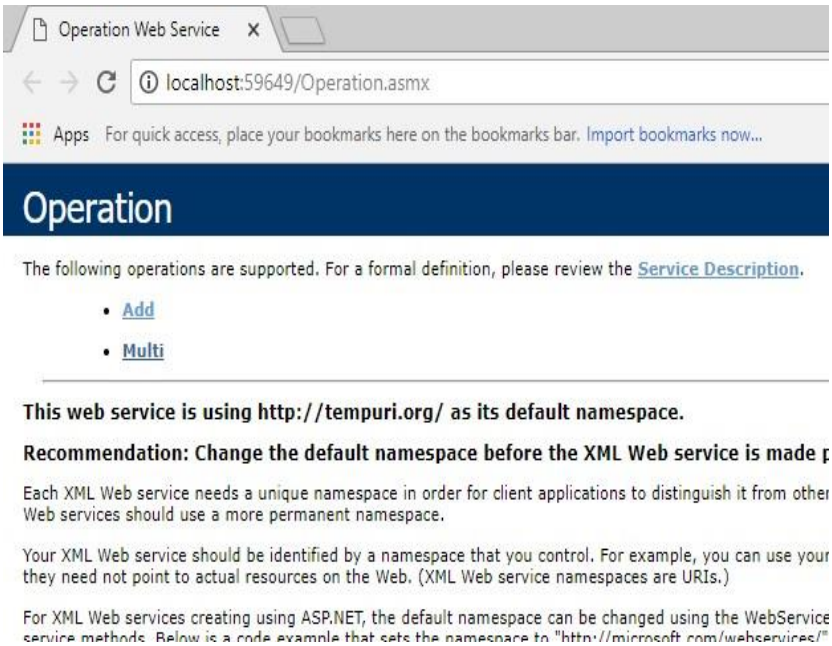


After that press Ctrl+S to save the methods. Actually we are creating two methods for Web Service. One is for addition of two numbers and second one is for multiplication of two numbers.

10. Now run the project by click on Green arrow button below the Window menu.

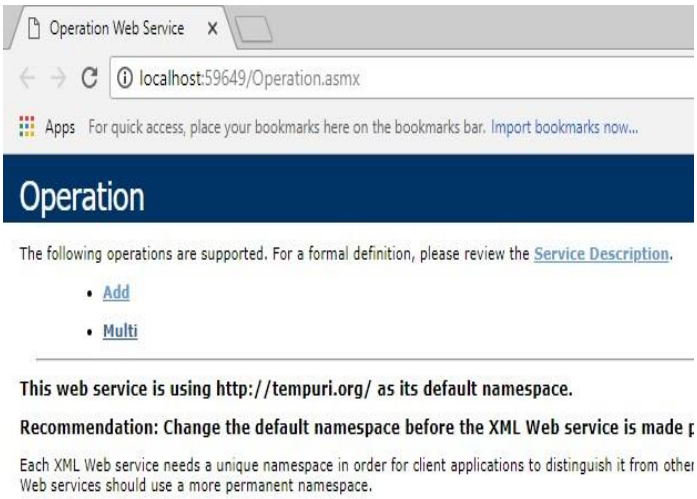


11. A window will open in browser and that is our web service.

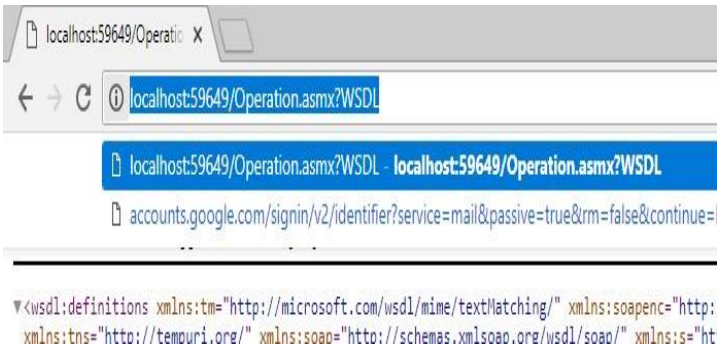


12. You can check services by click on Add or Multi option. But we don't need this.

13. Now click on Service Description option.



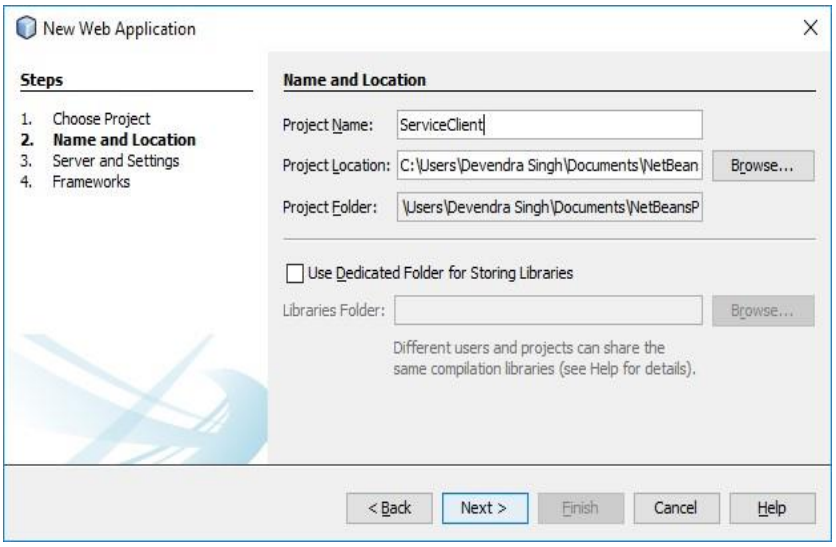
14. Now a new window will open. Select the link and copy it. We will use this link in NetBeans to consume these services.



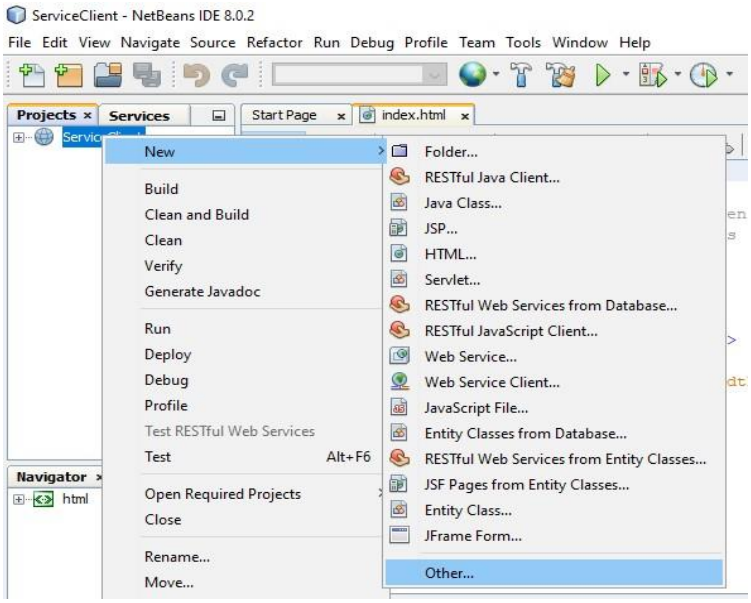
15. Don't close Visual Studio and browser, just minimize it otherwise server will stop. But save the link anywhere, so that we can use it later.

16. Now open NetBeans.

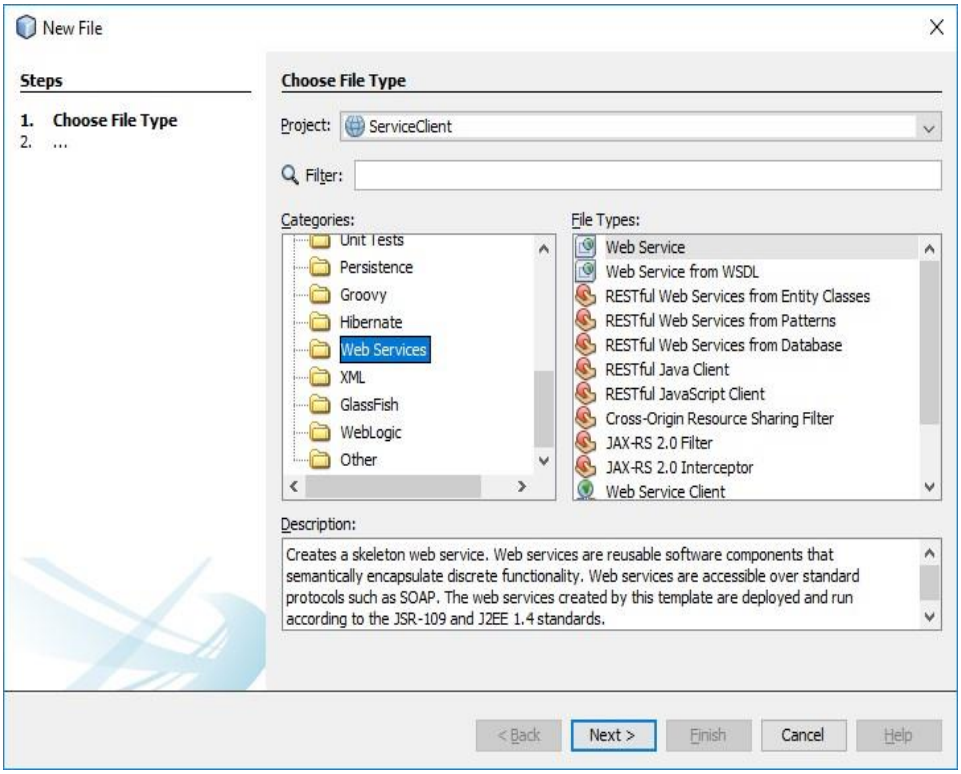
17. Create a Web Application with name ServiceClient. Next -> Finish.



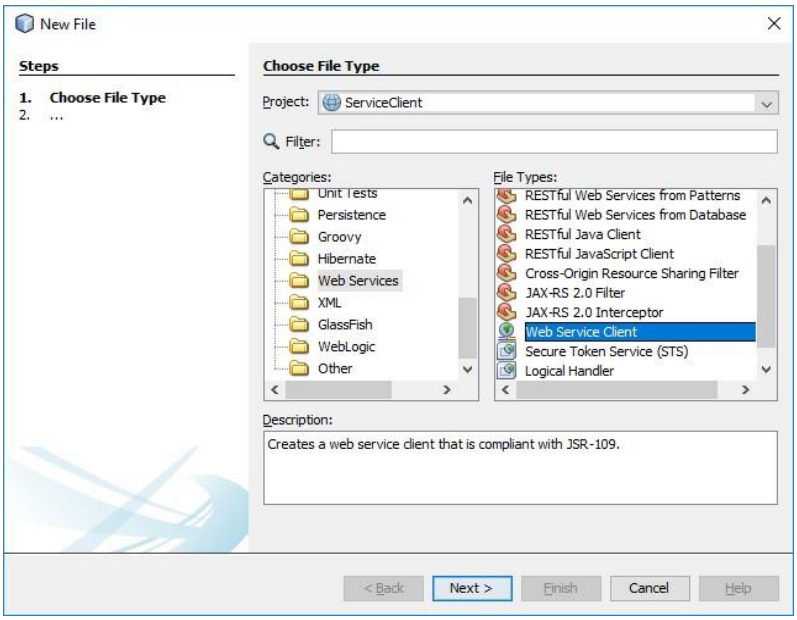
18. Now create a Web Service Client.
Right click on ServiceClient -> New -> Other.



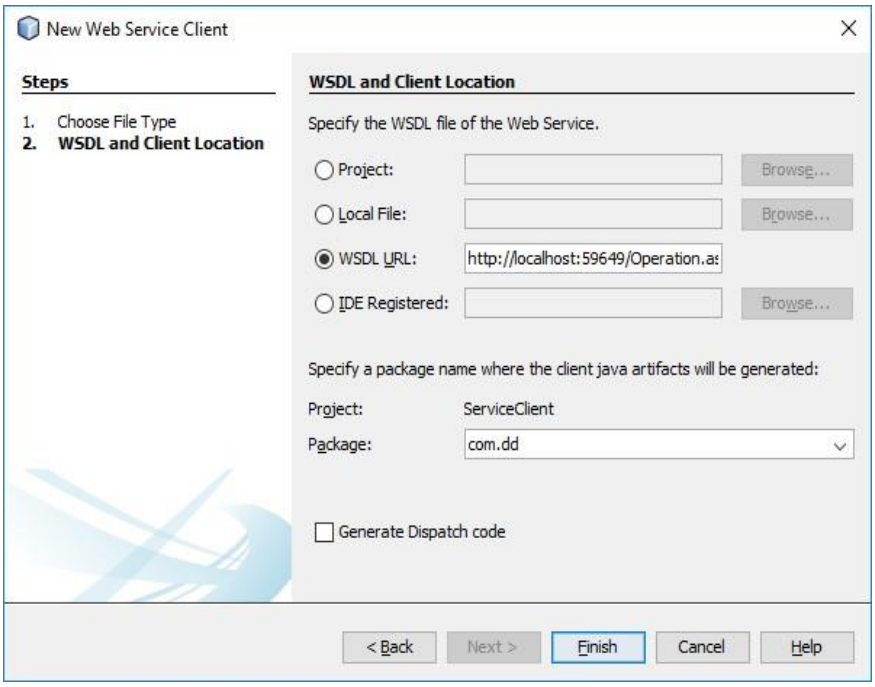
19. Now select Web Services in Categories section.



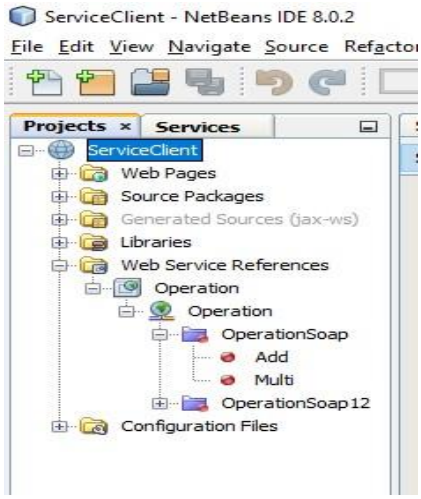
20. Select Web Service Client in File Types and Click on Next button.



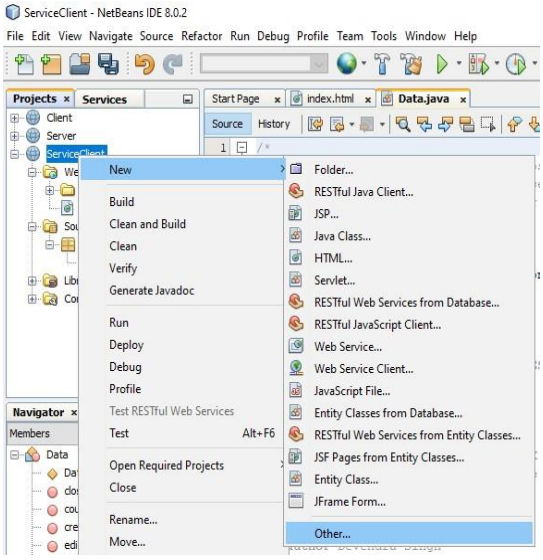
21. Select WSDL URL and paste the link that you have copied from browser on run of Visual Studio enter package name com.dd. After that click on Finish button.



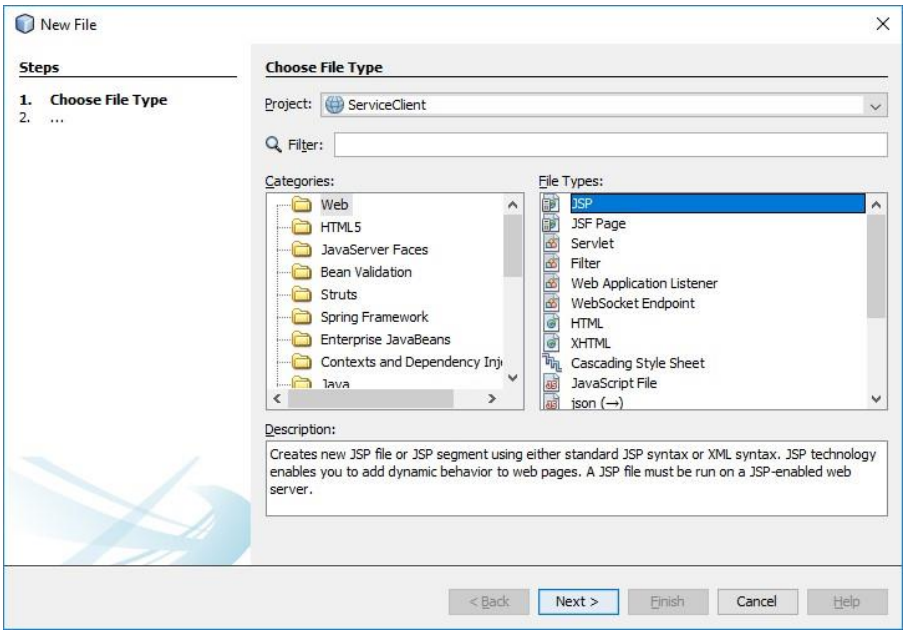
22. As you can see, we got both the service methods i.e. Add & Multi. But in this practical I'm going to use only one service method. You can do for both also.



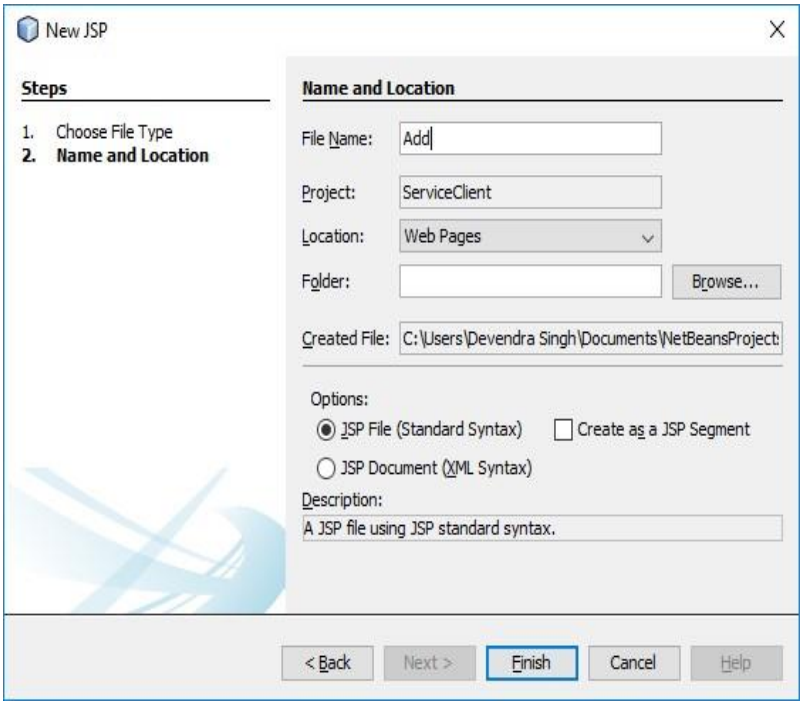
23. Now create a JSP page. Right click on ServiceClient -> New -> Other



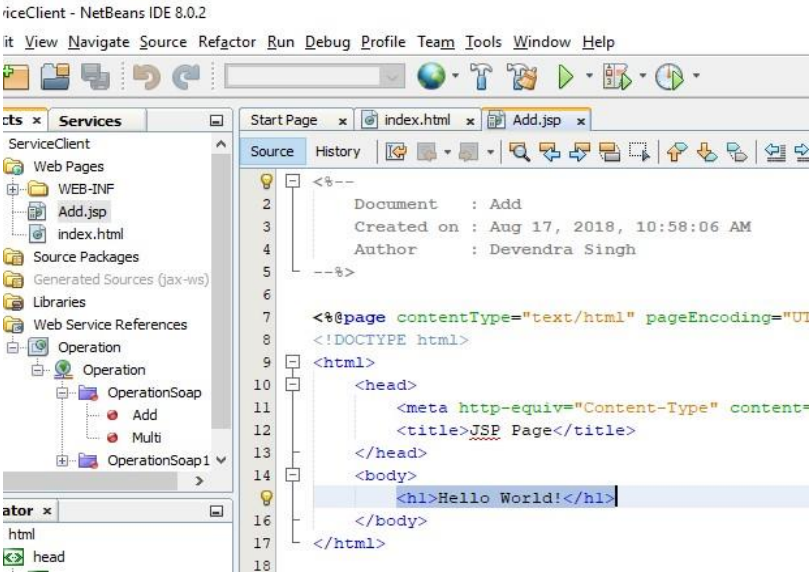
24. Select Web in Categories section -> Select JSP and click on Next button.



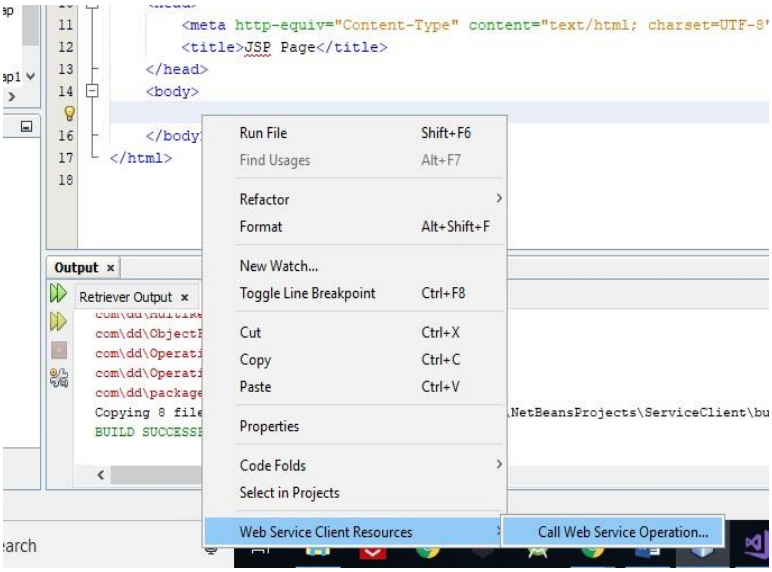
25. Enter File Name Add and click on Finish button.



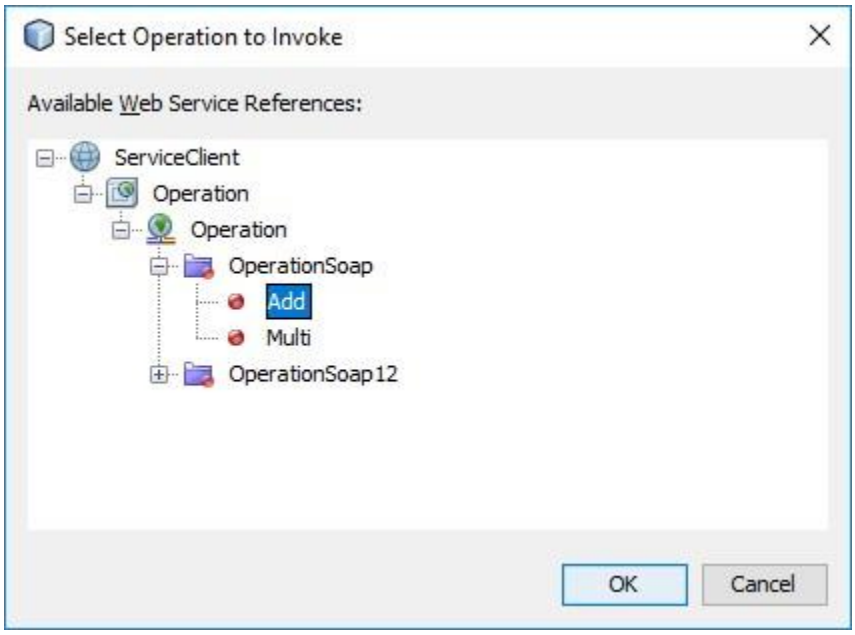
26. In Add.jsp file delete the selected part in body tag, because we don't need this.



27. Right click between body tag and select Call Web Service Operation.

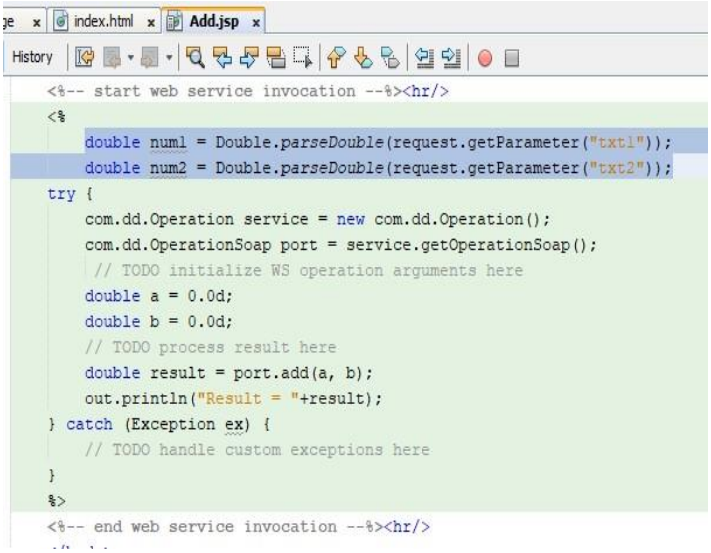


28. Expand and select Add. After select, click on OK button.

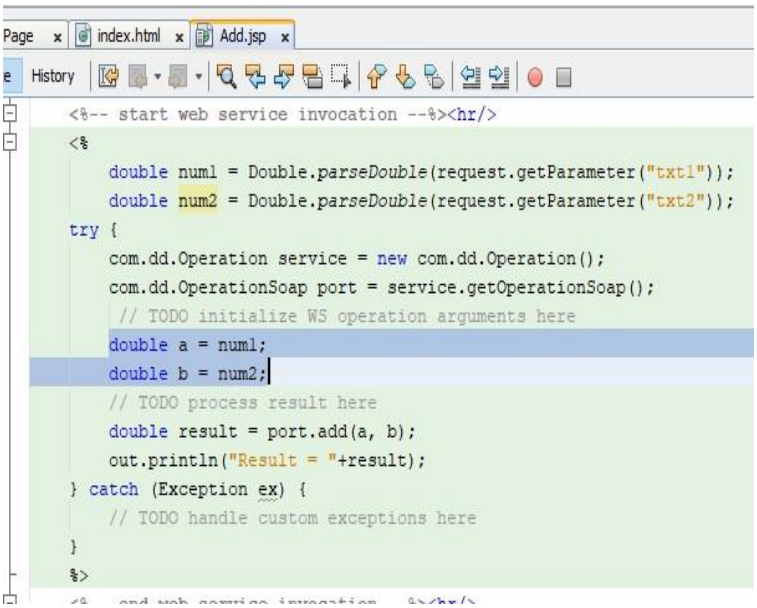


29. Now add the following code outside of try block.

double num1 = Double.parseDouble(request.getParameter("txt1")); double num2 = Double.parseDouble(request.getParameter("txt2"));

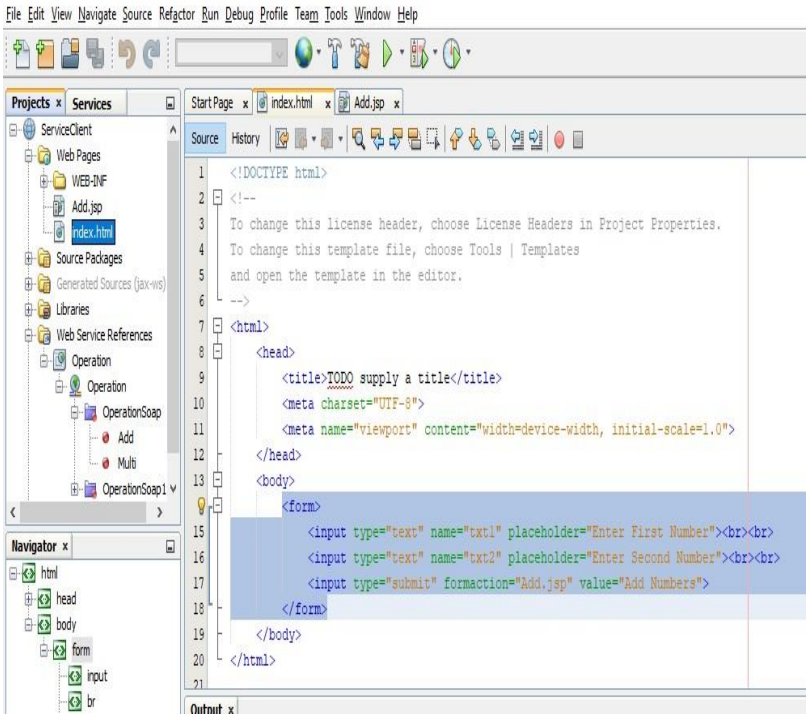


30. Now pass num1 & num2 to a & b variable respectively. After that press Ctrl+S to save this code.

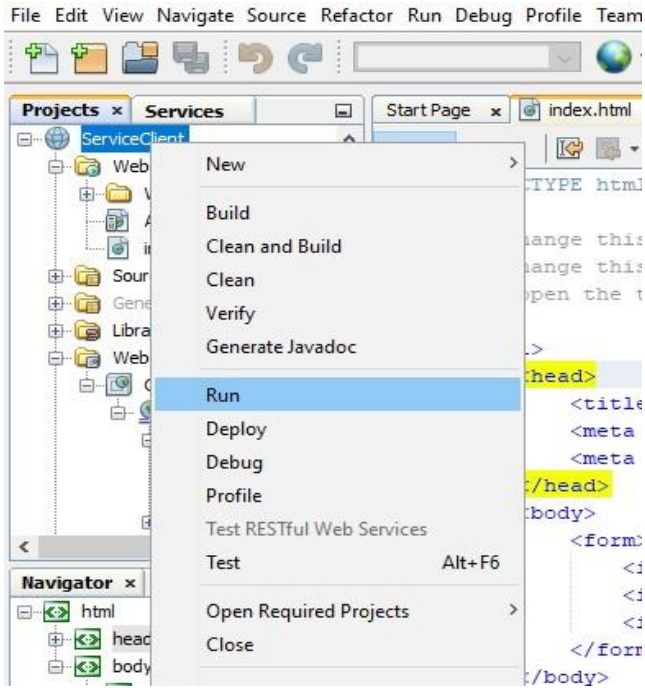


31. Now open index.html file of ServiceClient project and replace the contents of body tag with following code. After that press Ctrl+S to save it.

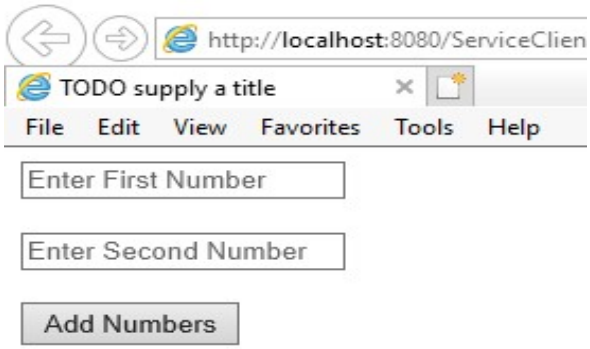
```
<form>
        <input type="text" name="txt1" placeholder="Enter First
        Number"><br><br>
        <input type="text" name="txt2" placeholder="Enter Second
        Number"><br><br>
        <input type="submit" formaction="Add.jsp" value="Add Numbers">
</form>
```



32. Now run the ServerClient web application.

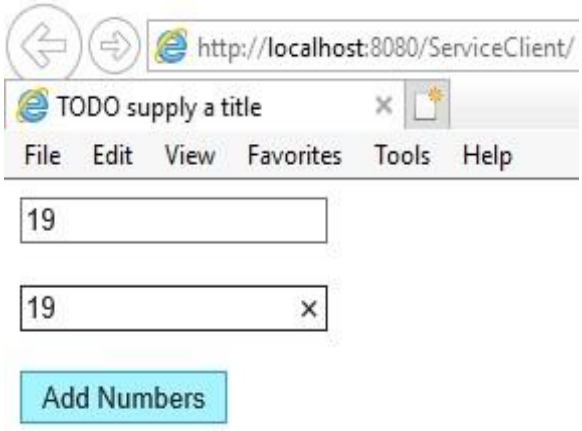


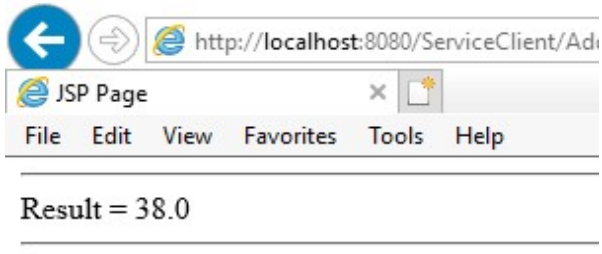
33. A window will open in browser as below.



34. Now enter two numbers and click on Add Numbers button. Wait to get result……..

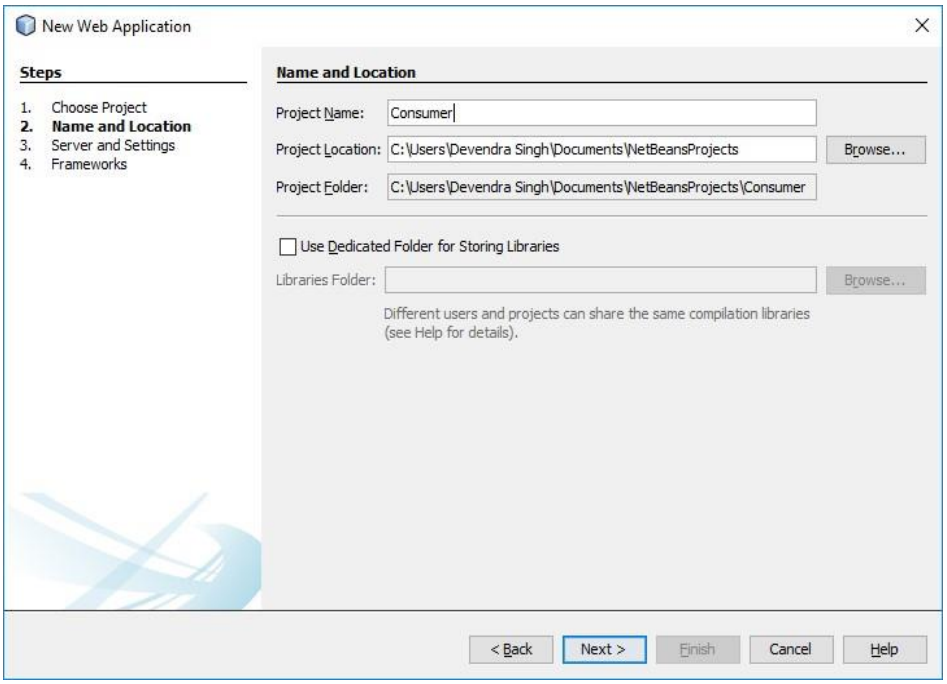
You will get result on a new page.



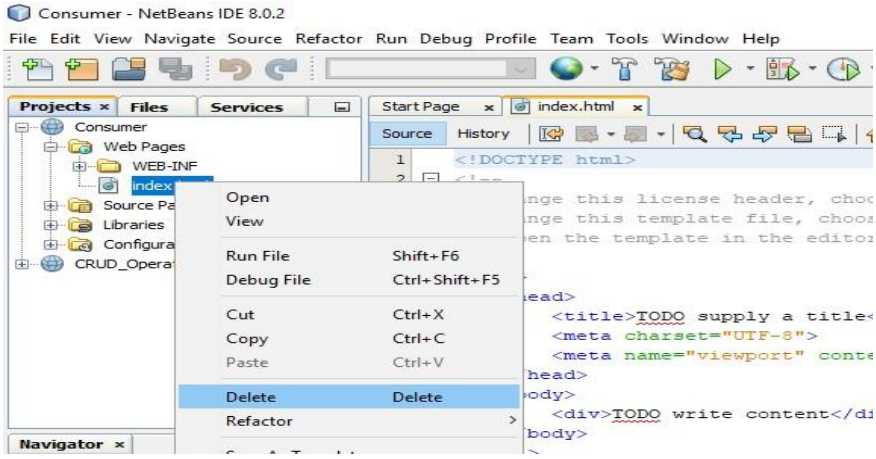


Practical -05

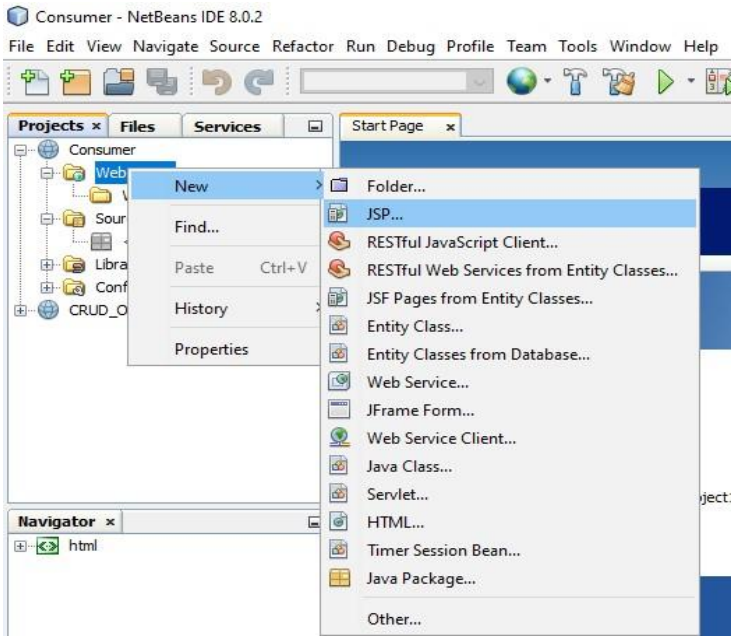
1. Create an another Web Application project and Give name as Consumer.



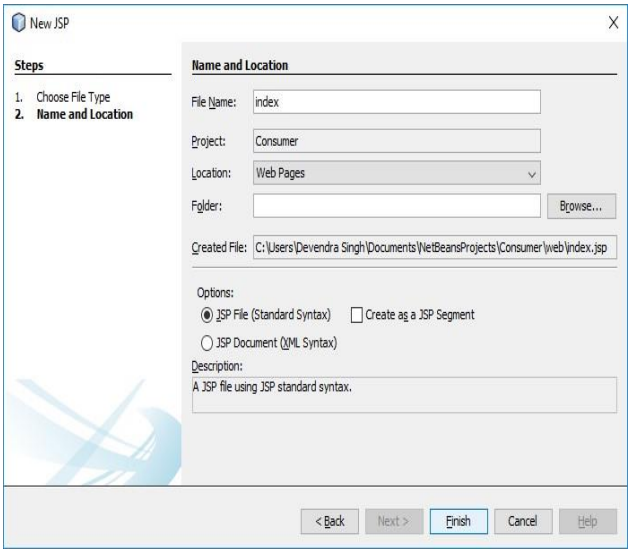
2. And create it. Next -> Finish.
3. Now right click on index.html and delete it.



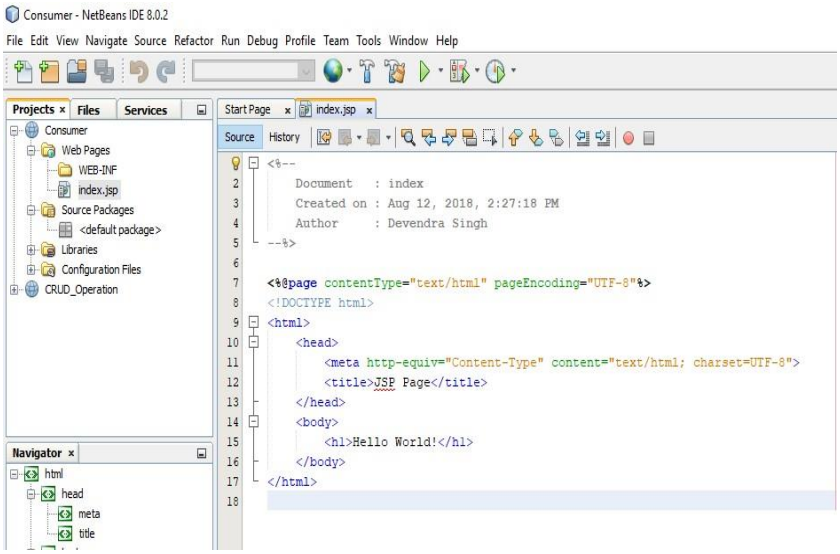
4. Now right click on Web Pages and select JSP to add a JSP page.



5. Give index name to it and then click on Finish.



6. Now index.jsp page will open like below.



7. Now select HTML content of index.jsp file and replace it with following bold letter codes.

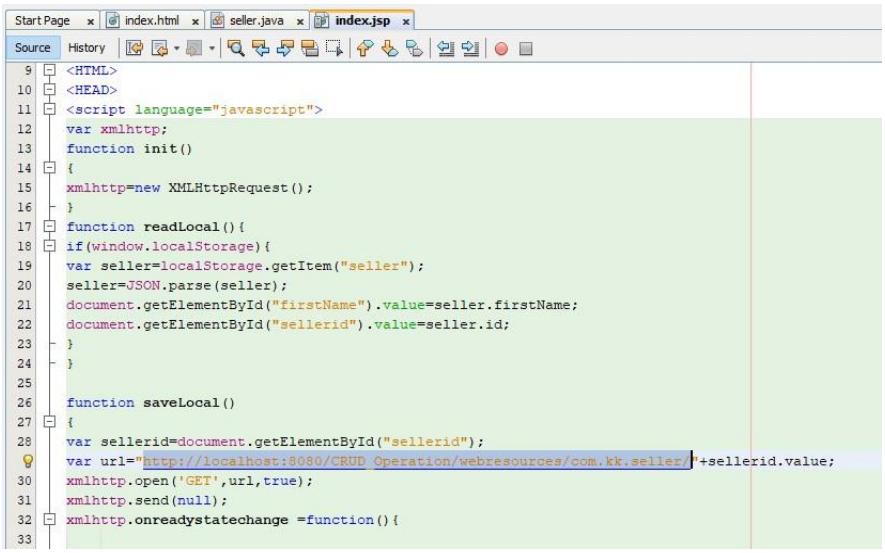
<HTML>
<HEAD>
<script language="javascript"> var
xmlhttp;
function init()
{
xmlhttp=new XMLHttpRequest();
}
function readLocal(){ if(window.localStorage){
var seller=localStorage.getItem("seller"); seller=JSON.parse(seller);
document.getElementById("firstName").value=seller.firstName;
document.getElementById("sellerid").value=seller.id;
}
}

function saveLocal()
{
var sellerid=document.getElementById("sellerid"); var
url="http://localhost:8080/CRUD_Operation/webresources/com.kk.seller/"+
sellerid.value;
xmlhttp.open('GET',url,true); xmlhttp.send(null);

```
xmlhttp.onreadystatechange =function(){

    if(xmlhttp.readyState===4){alert("6"+sellerid);
    if(xmlhttp.status===200){alert("7"+sellerid);
                    var seller =eval("("+xmlhttp.responseText+")");
    if(window.localStorage){

     localStorage.setItem("seller",JSON.stringify(seller));
                                    alert("information stored
successfully"+seller.firstName);
                                    }
                                            else{
                                                    alert("notStored");
                                    }
                            }
                            else
                                alert("error");
                            }
                            };
                            }
</script>
</head>
<body onLoad ="init()">
<table>
<tr>
<td>Enter id:</td>
<td><input type="text" id="sellerid"/>
<input type="button" value="load employee in local browser" onClick="saveLocal()"/>
</td>
</tr>
<tr>
<td>read from local</td>
<td><input type="button" value="Send values" onClick="readLocal()"/></td> </tr>
<tr>
<td>first Name:</td>
```

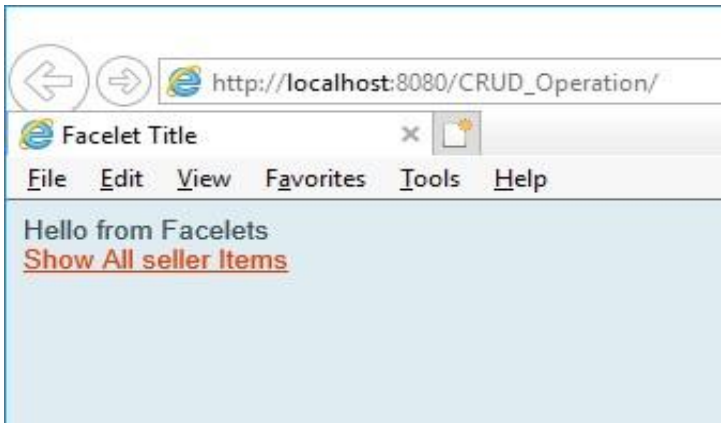
```
<td> <input type="text" id="firstName"/></td>
</tr>
</table>
</body>
</html>
```

8. Now in the following pic, highlighted URL is most important. I'm explaining it next step.



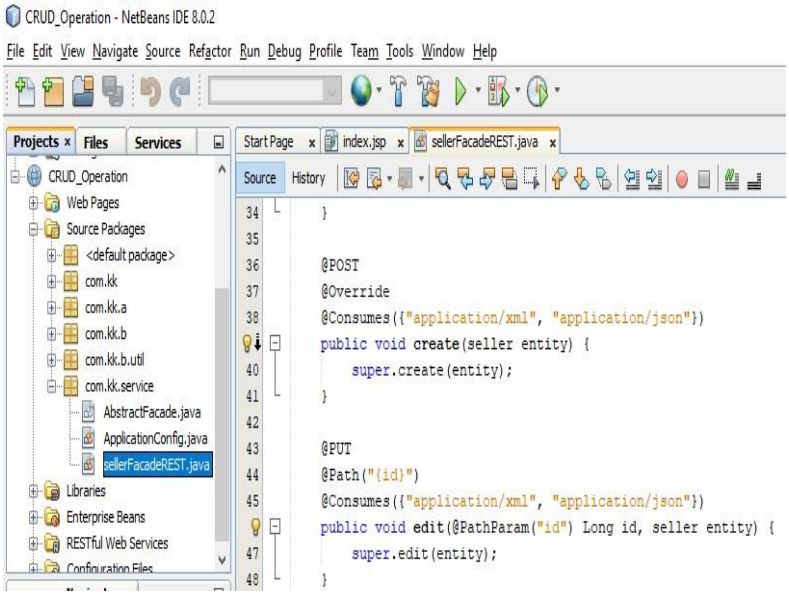
9. http://localhost:8080/CRUD_Operation/webresources/com.kk.seller/

Red part is the URL of which is obtained in browser by running of CRUD_Operation web application.

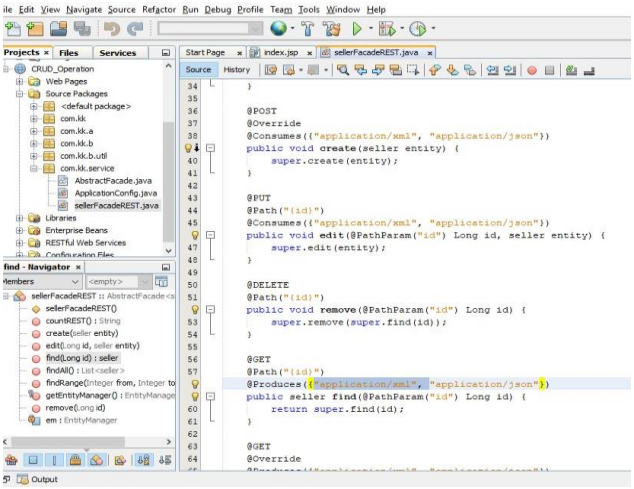


Blue part in above link is static. But red part is dynamic which is based on practical 7. So if you have changed name anywhere then the above URL will change accordingly.

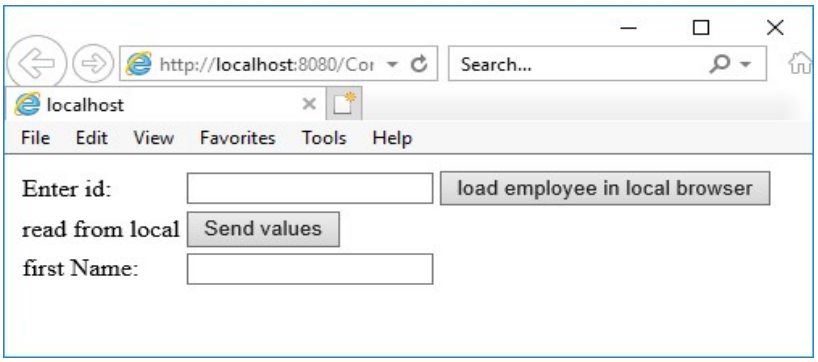
10. Now open sellerFacadeREST.java file by follow below pic available in CRUD_Operation web application.



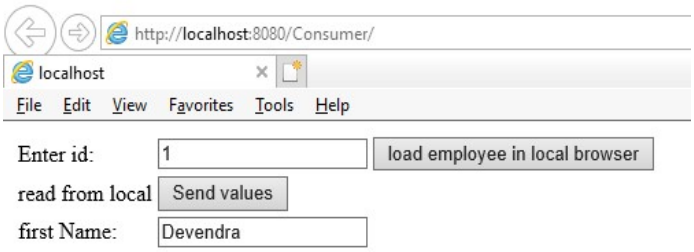
11. Now delete the selected part. Because it will return data in XML format to the consumer. But we have written javascript in index.jsp for JSON data format only. After that deploy the CRUD_Operation web application; so that it will update the changes.



12. Now run the Consumer application. A window will open in browser like below.



13. Now if you will enter an id into Enter id textbox which you have created in database (id from data in last step of practical 7) and then click on load employee in local browser button. It will get the detail of particular entered id and will store it into local storage of browser. Now click on Send Values to get the first name of entered id.

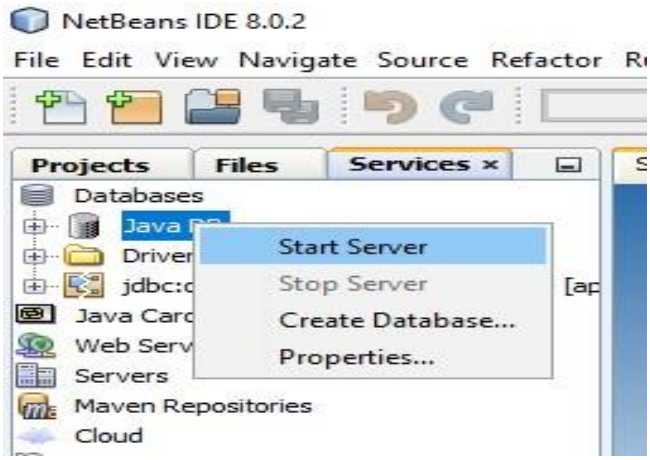


PRACTICAL-6

Aim: Define a web service method that returns the contents of a database in a JSON string. The contents should be displayed in a tabular format.

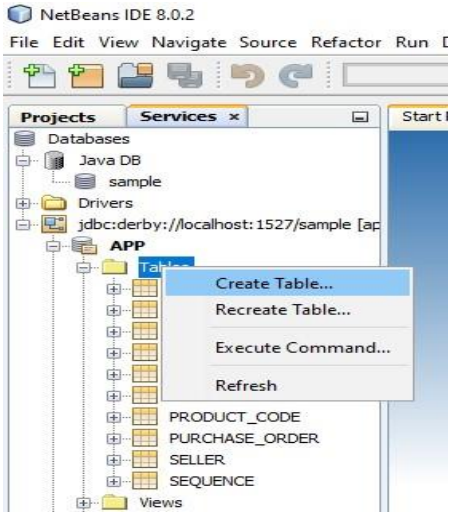
1. Click on Window menu and click on Projects, Files & Services to open it.

2. Right click on Java DB and then click on Start Server to start the server .

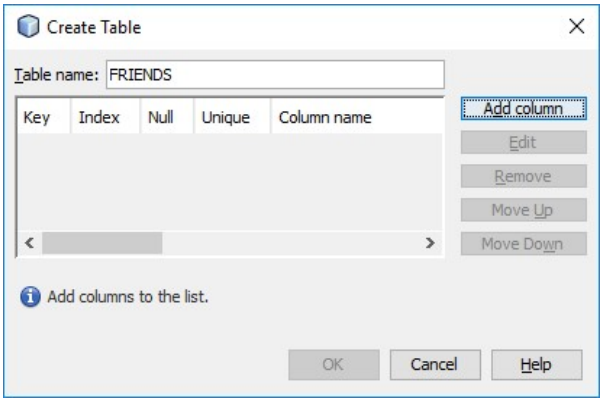


3. Now expand Java DB and right click on sample and then click on connect to connect the sample database with server.

4. Now we are going to create a table in default database sample.
Right click on Table -> Create Table

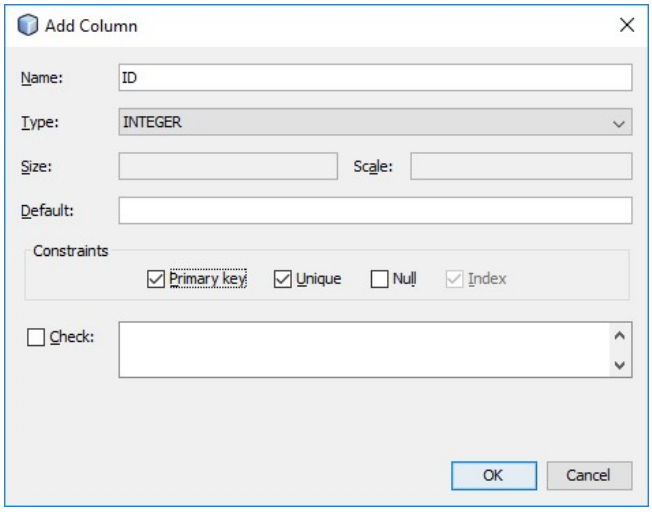


5. Give table name as FRIENDS.



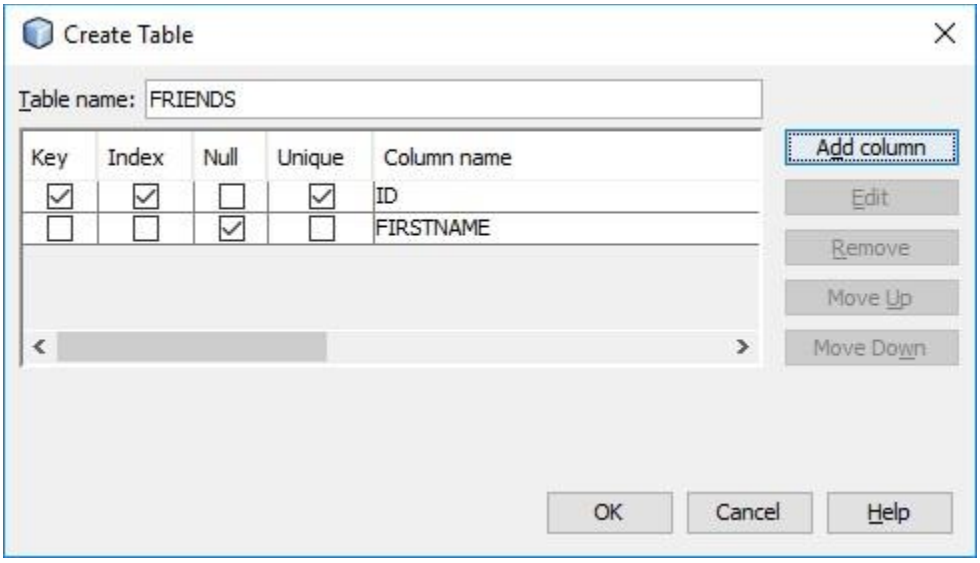
6. click on Add column button to add columns in table.

Enter details as in below pic and select Primary key. After that click on OK button.

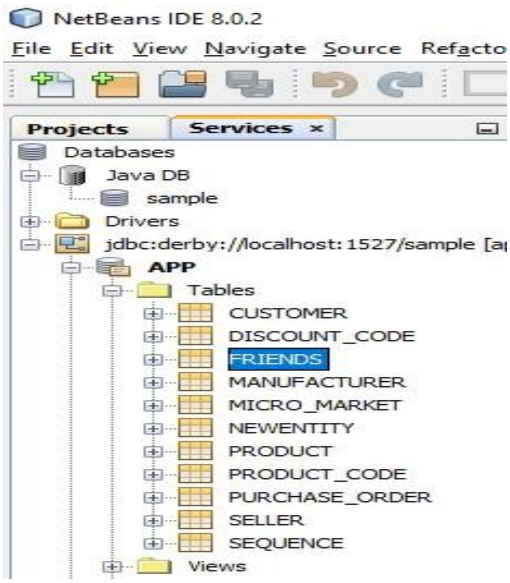


7. Now add second column with following detail. But don't select primary and click on OK button.

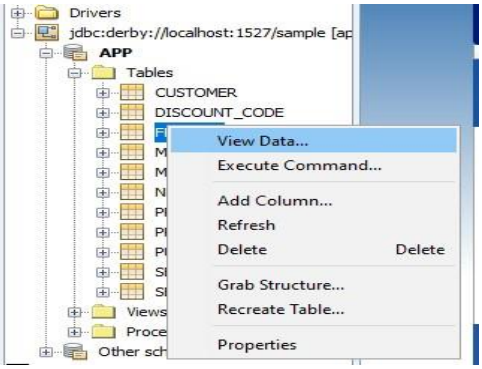
click on OK button.



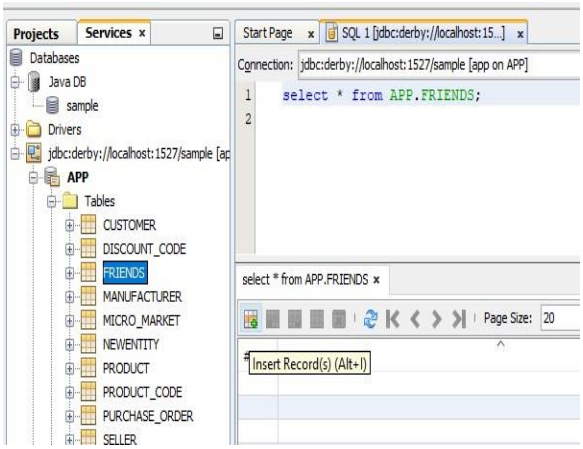
8. Now you can see a table with name FRIENDS in the table.



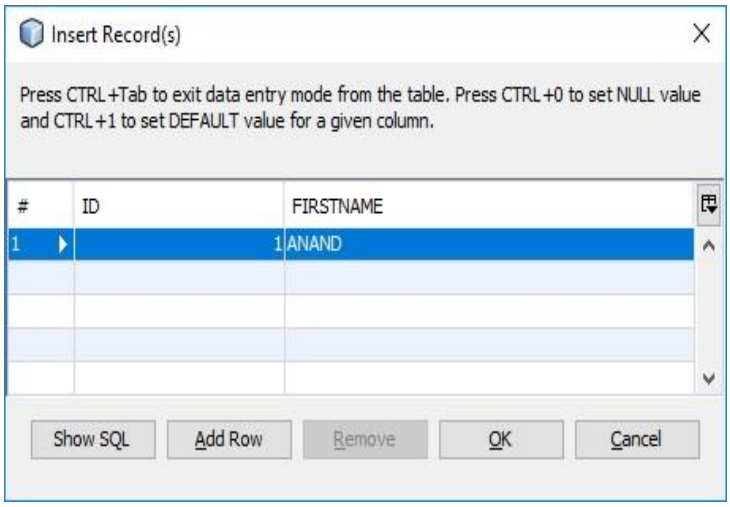
9. Right click on FRIENDS to view and add records into it.



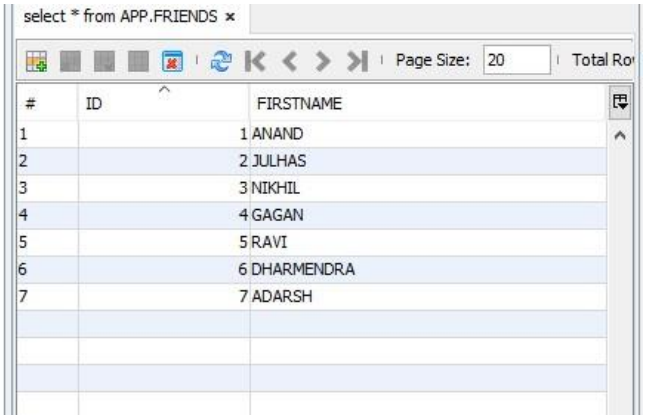
10. click on the leftmost icon in second panel to insert some record.



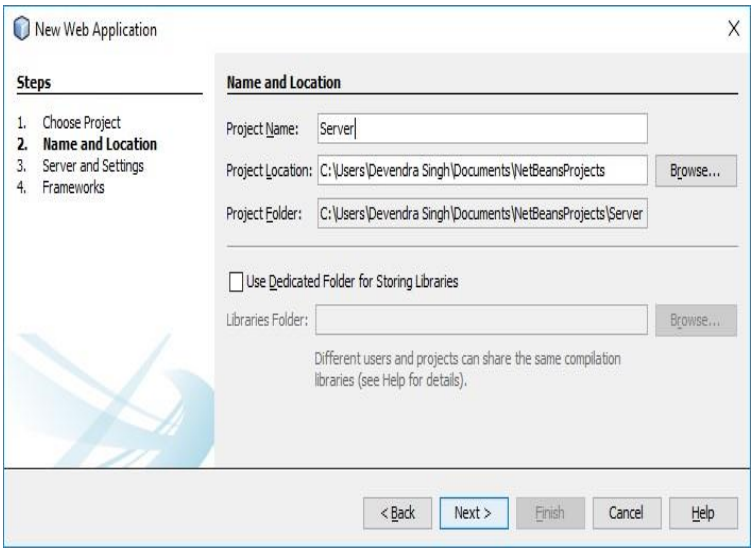
11. Insert a record and then click on Add Row button to insert more record. After that click on OK button to finish.



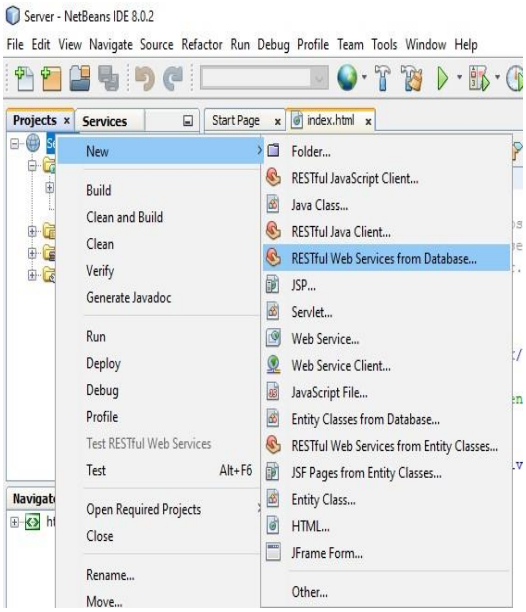
12. As you can see, I have entered 7 records.



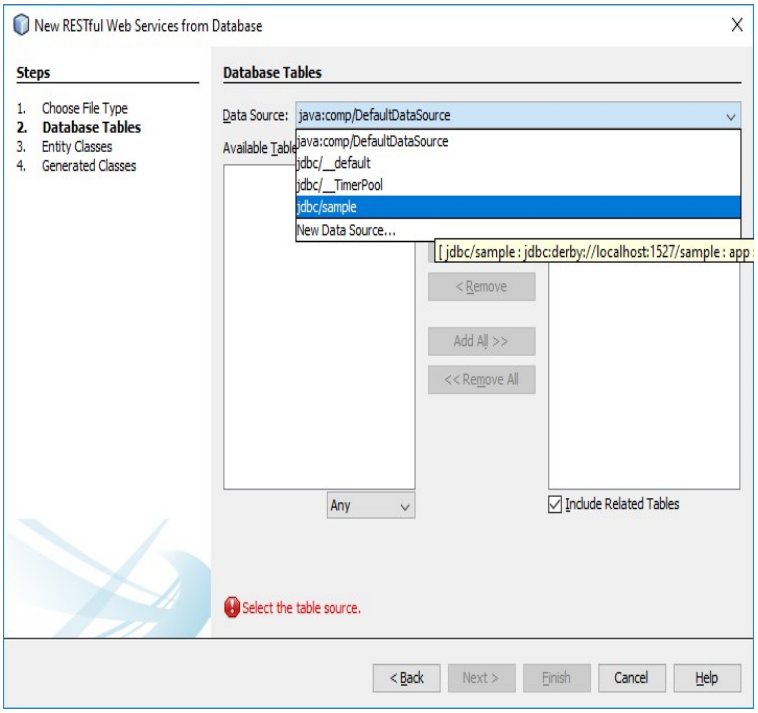
13. create a web application with name Server. After that click on Next and then Finish button.



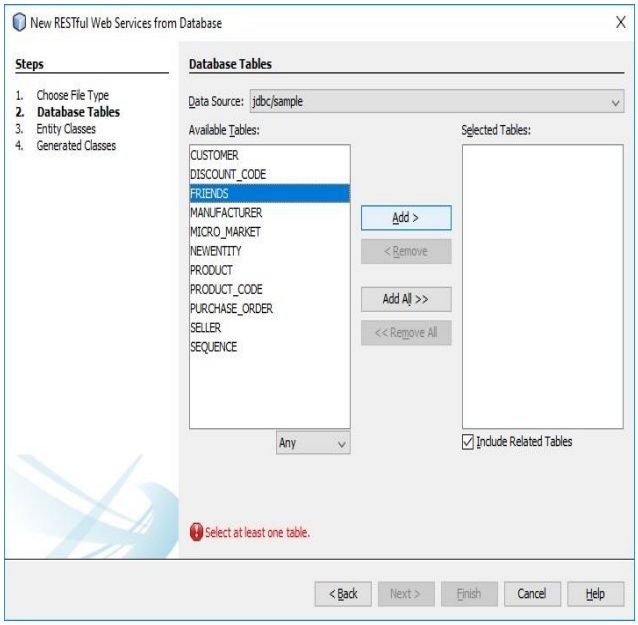
14. Now create a RESTful Web Service from Database by right click on project name.



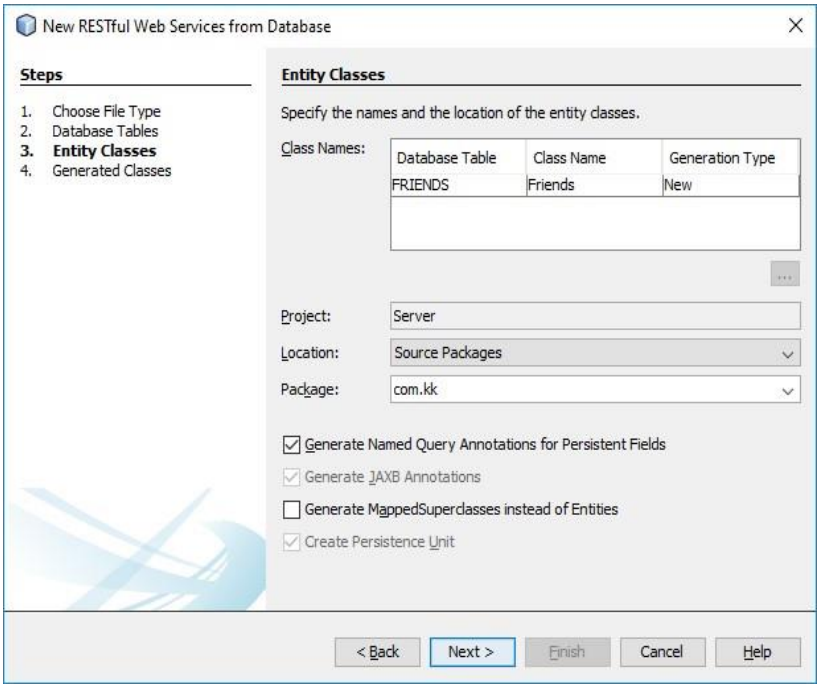
15. Choose Data Source jdbc/sample.



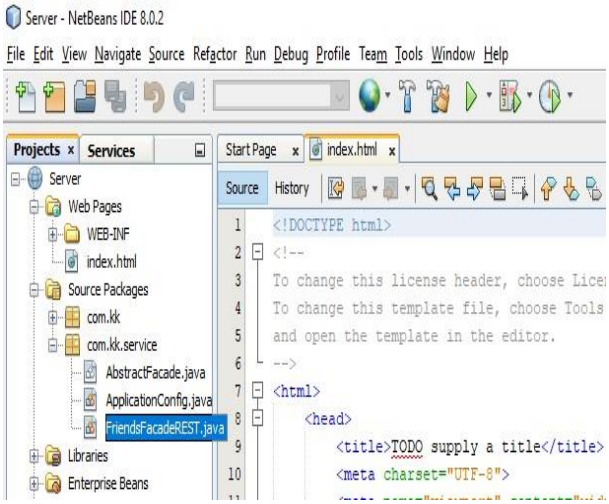
16. Now select FRIENDS and click on Add button. After that click on Next button.



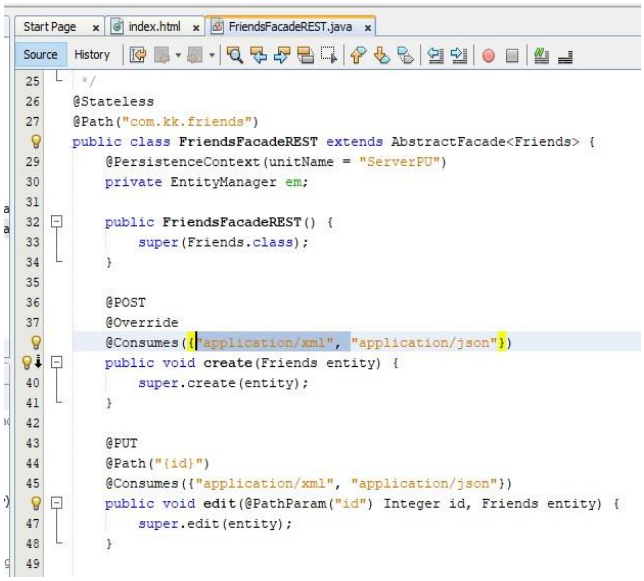
17. Enter Package name as com.kk and click on Next button and then Finish.



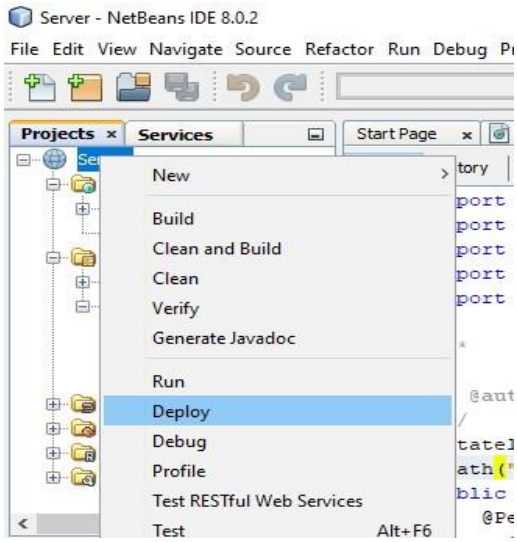
18. Now open selected file by double click on it.



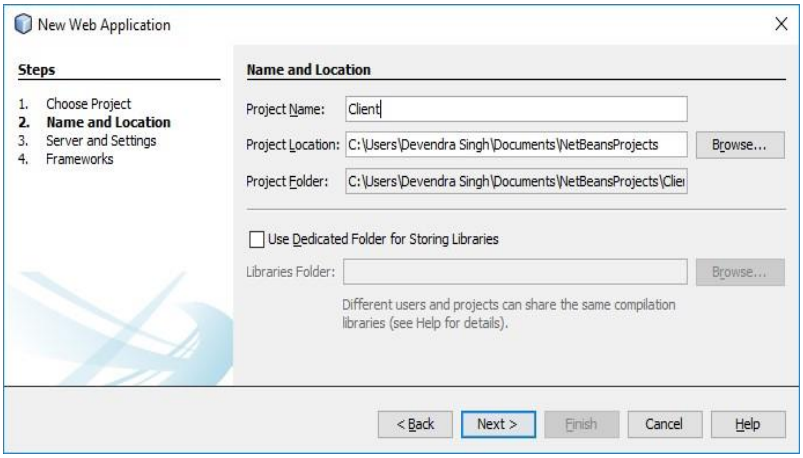
19. Now remove the selected part from every method in this file. So that it will communicate only in JSON format. You can also use methods to convert it. But this is easiest method.



20. After that right click on project name and Deploy it.



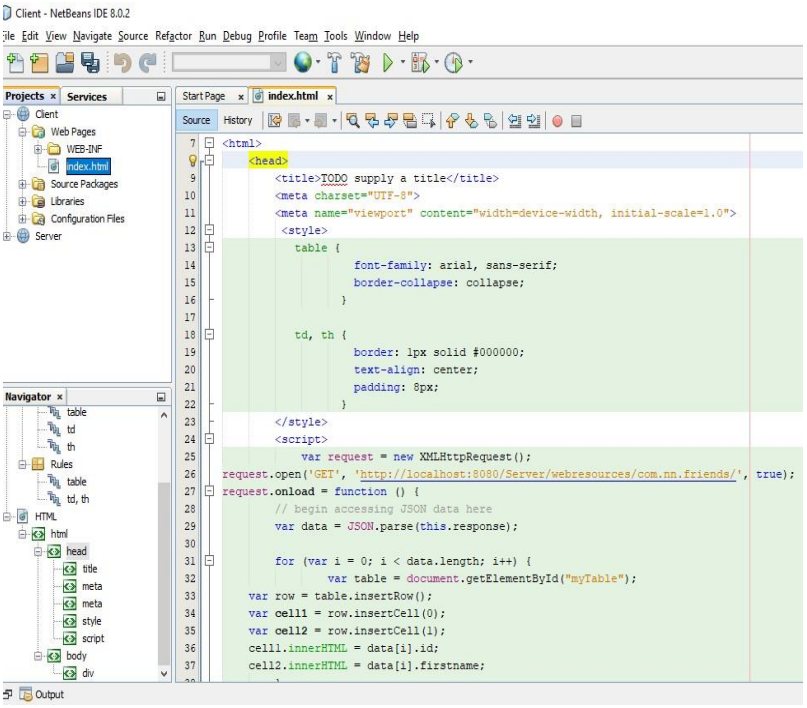
21. Now create one more Web Application as Client. After that click on Next and then Finish button.



22. Now open the index.html file of Client project and add the following code in between HEAD tag.

```
<style>
        table {
              font-family: arial, sans-serif;
              border-collapse: collapse;
             }

        td, th {
              border: 1px solid #000000;
              text-align: center;
              padding: 8px;
```

```
            }
        </style>
        <script>
           var request = new XMLHttpRequest();
request.open('GET',
'http://localhost:8080/Server/webresources/com.kk.friends/',
true); request.onload = function () {         // begin accessing JSON
data here
      var data = JSON.parse(this.response);

      for (var i = 0; i < data.length; i++) {
              var table =
document.getElementById("myTable");     var row =
table.insertRow();     var cell1 = row.insertCell(0);     var
cell2 = row.insertCell(1);     cell1.innerHTML = data[i].id;
cell2.innerHTML = data[i].firstname;
     }
};

request.send();
        </script>
```

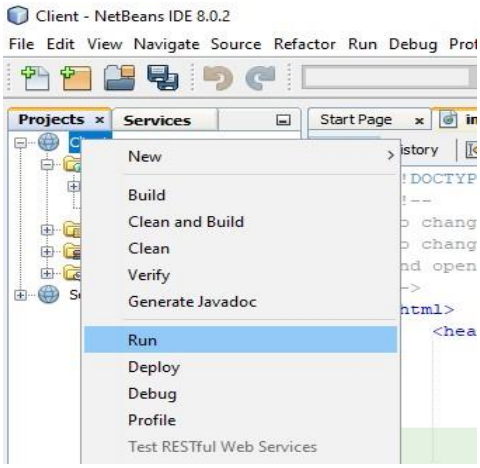


URL in the red font is sensitive. It will change accordingly if you have not given the project and file names as of mine.

24. Replace the content of body tag with following code.

```
<table id="myTable">
        <tr>
          <th> ID</th>
          <th>NAME</th>
        </tr>
      </table>
```

25. Now run the Client Web Application.

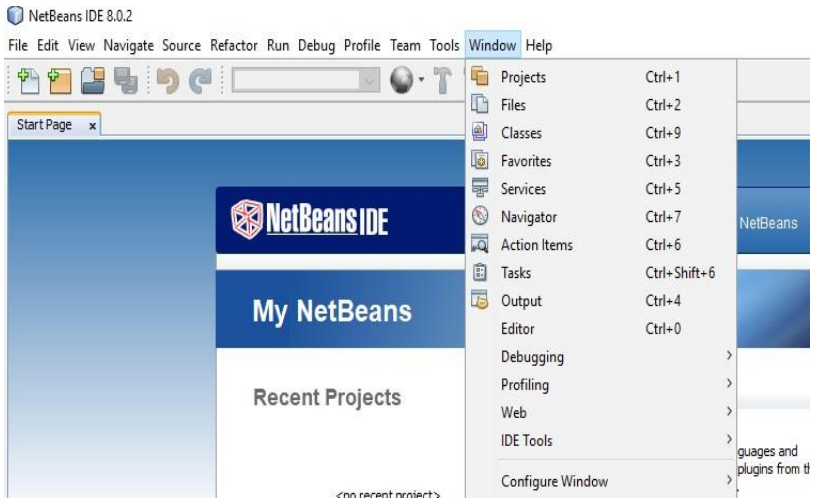


26. A window will open in browser which represents a data in tabular format. These data are the records entered in FRIEND table.

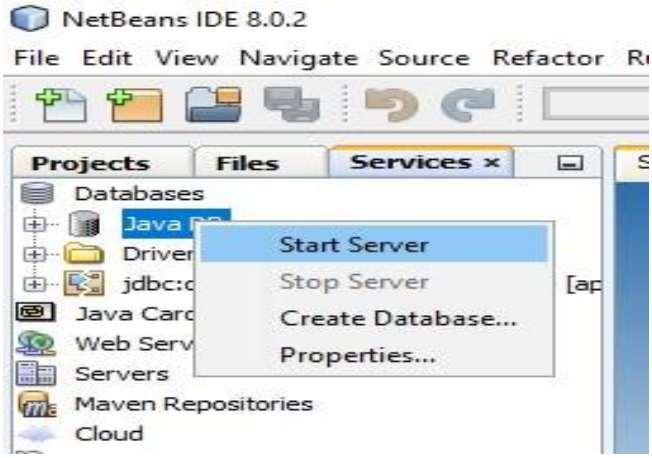
ID	NAME
1	ANAND
2	JULHAS
3	NIKHIL
4	GAGAN
5	RAVI
6	DHARMENDRA
7	ADARSH

Practical-07

1. Click on Window menu and click on **Projects, Files** & **Services** to open it.

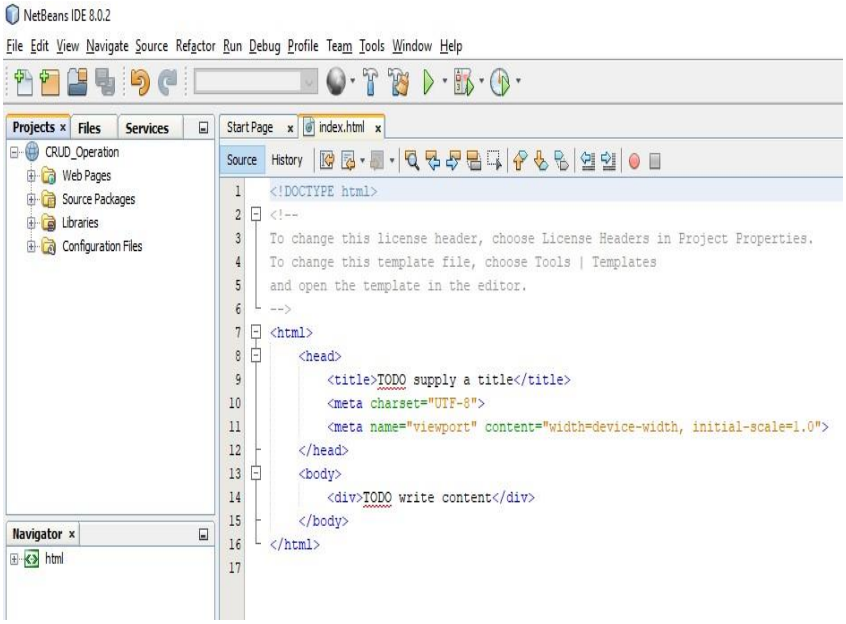


2. **Right click on Java DB** and then **click on Start Server** to start the server .

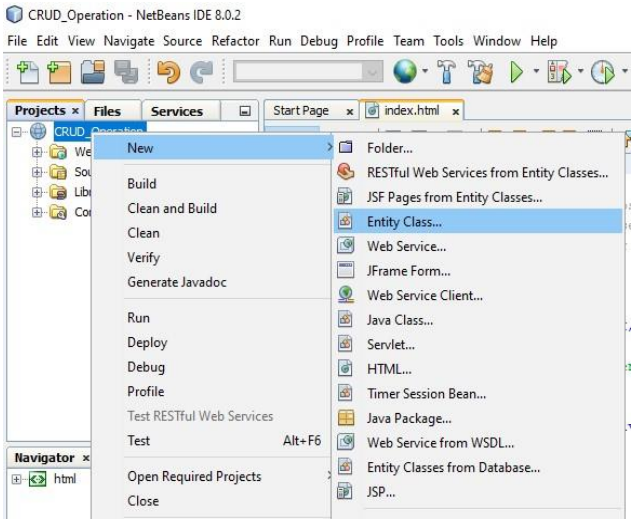


3. Now expand Java DB and **right click on sample** and then **click on connect** to connect the sample database with server.

4. Now create a web application with the name **CRUD_Operation**. A window will open like following pic.



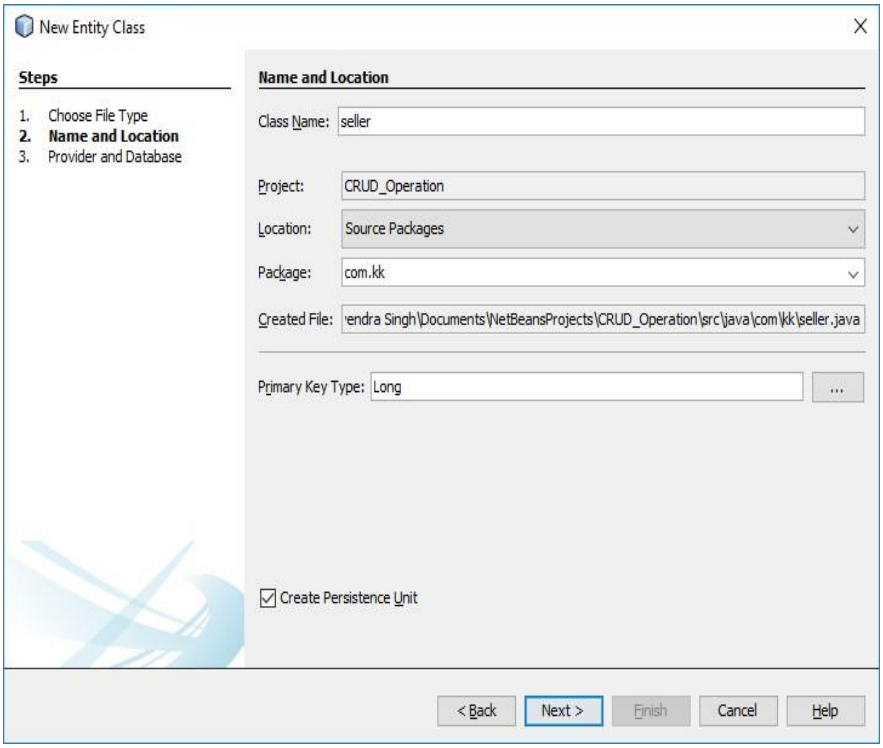
5. Create an entity class. **Right click on project name -> New -> Entity Class**.



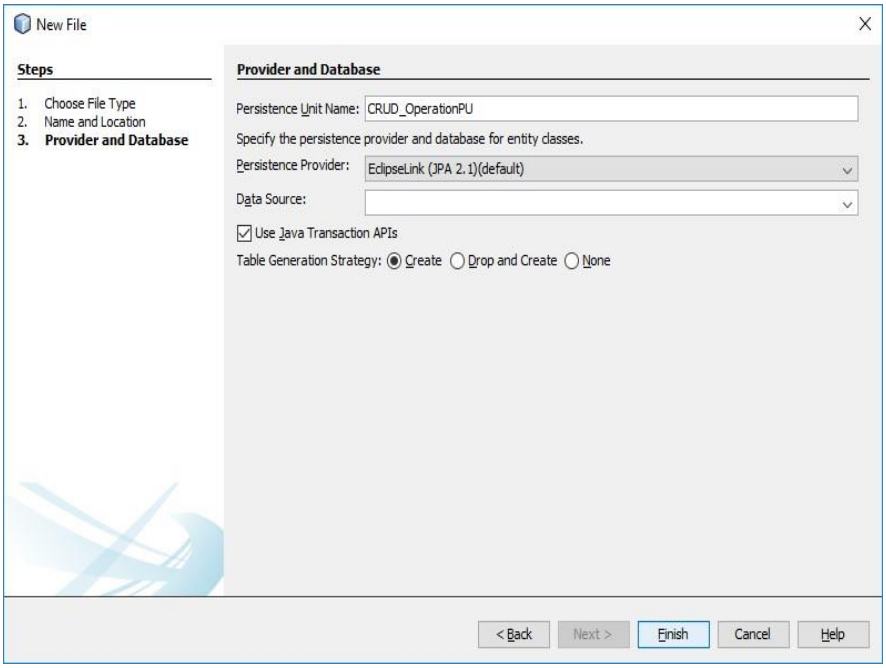
6. A window will appear like bellow pic. Enter following data and click on Next ….

Class Name -> seller

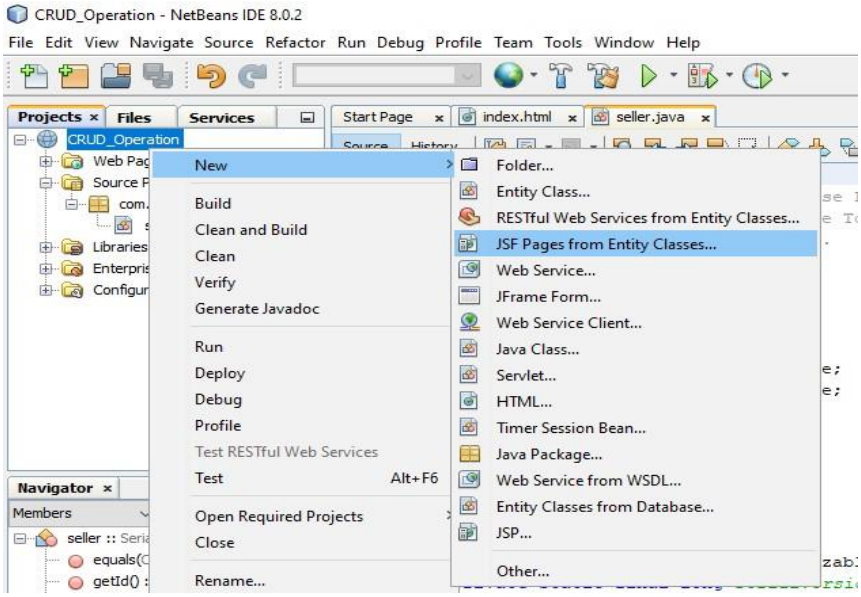
Package Name -> com.kk



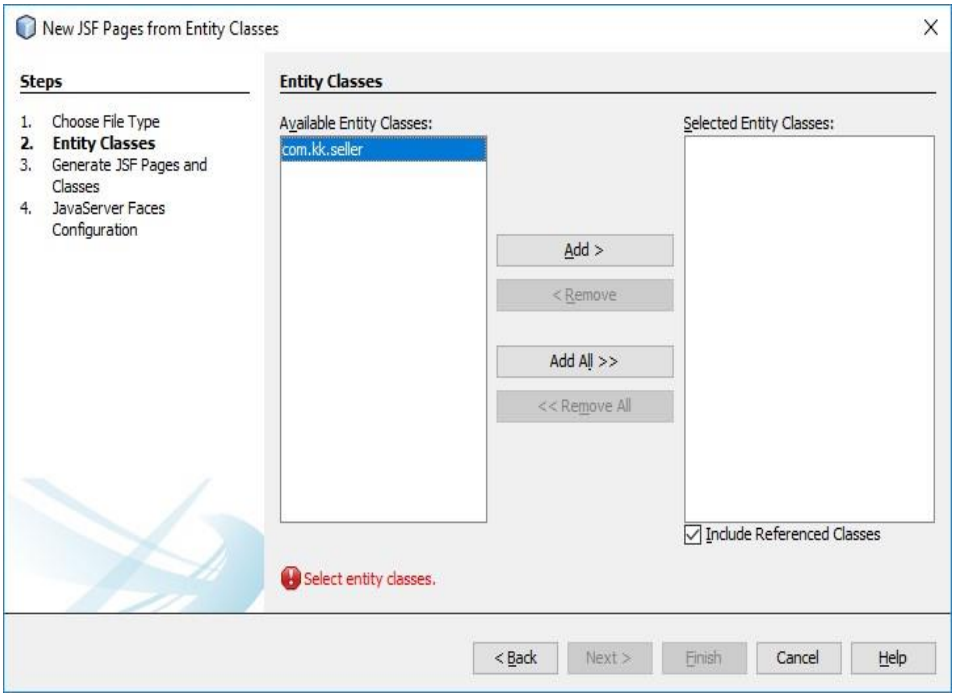
7. Click on Finish.



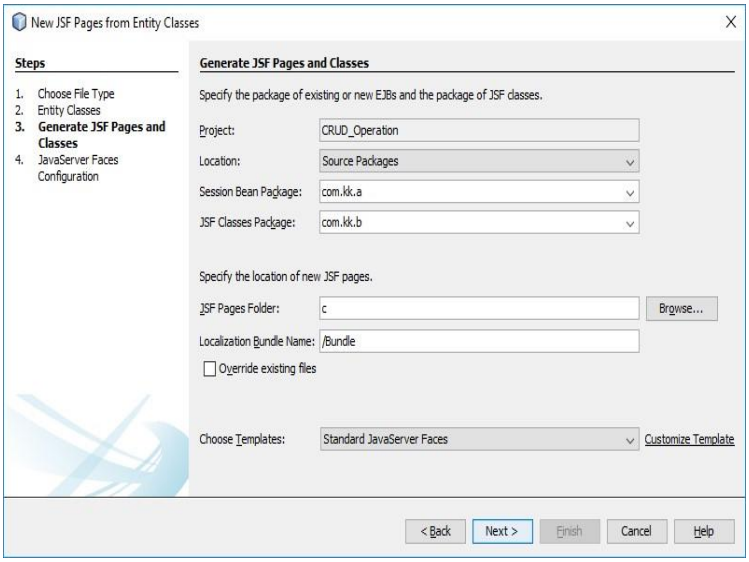
8. Right click on project name and create JSF Pages from Entity Classes. **Right click on project name -> New -> JSF Pages from Entity Classes**



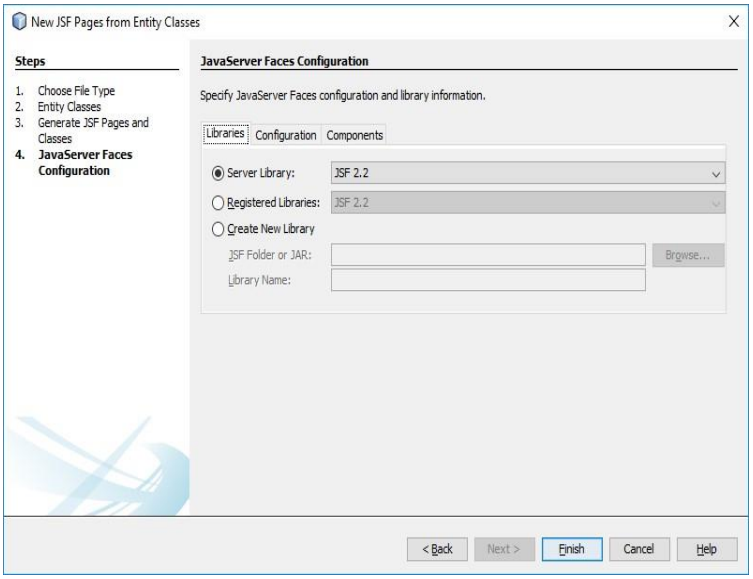
9. **Select com.kk.seller** and **click on Add button and then Next button** on below.



10. A window like below will appear on the screen. **Enter the data into that window as entered in below pic** and **click on Next button**.

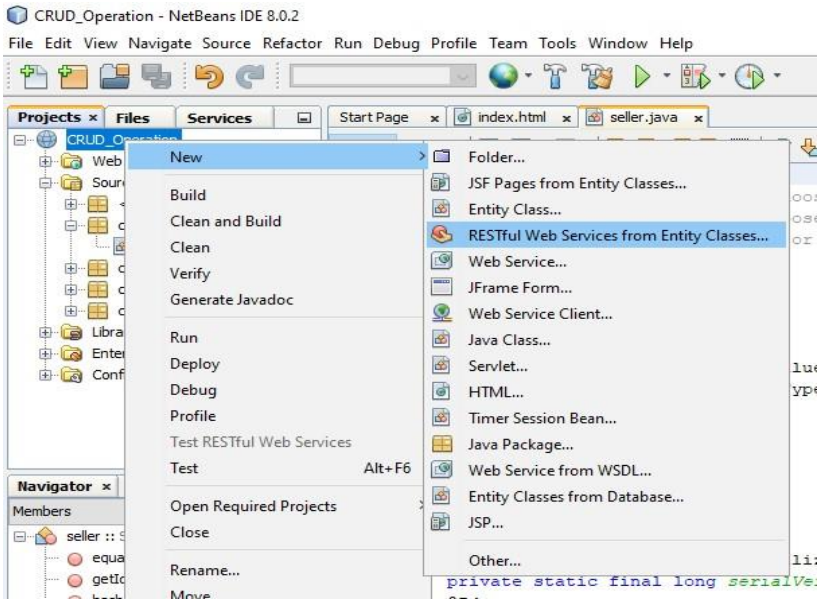


11. Now **click on Finish**.

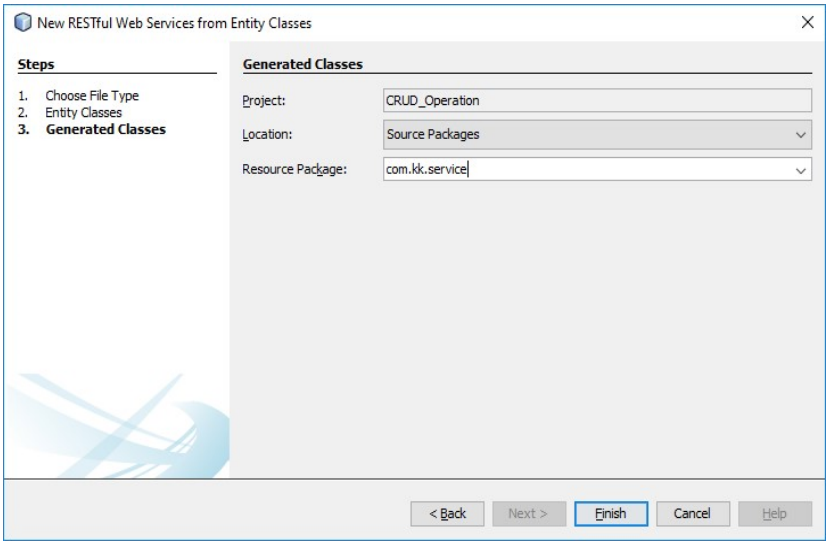


12. Right click on project name and create RESTful Web Services from Entity Classes.

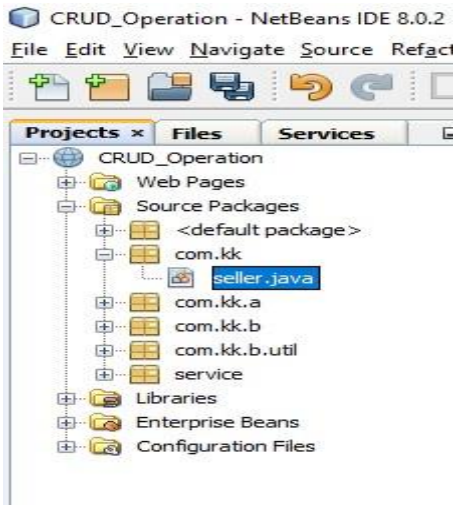
Right click on project name -> New -> RESTful Web Services from Entity Classes



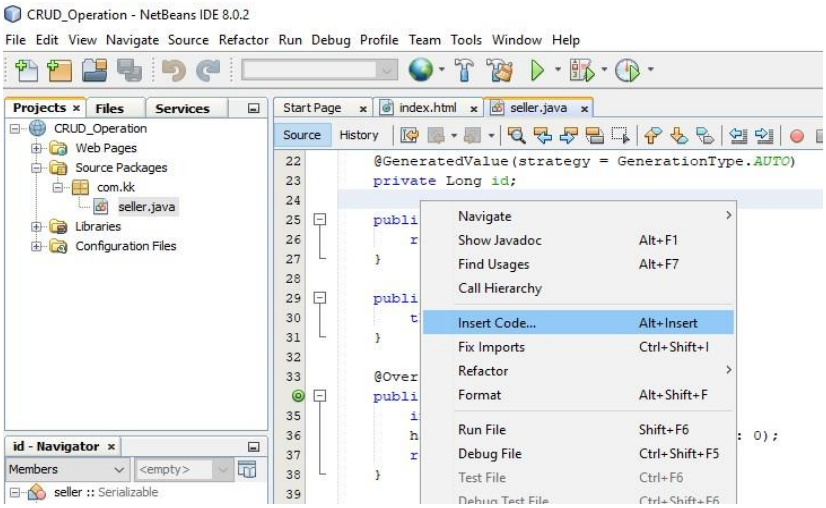
13. **Repeat step 9** and then it will go on next page. Then **enter the com.kk.service** in Resource Package and then **click on Finish button**.



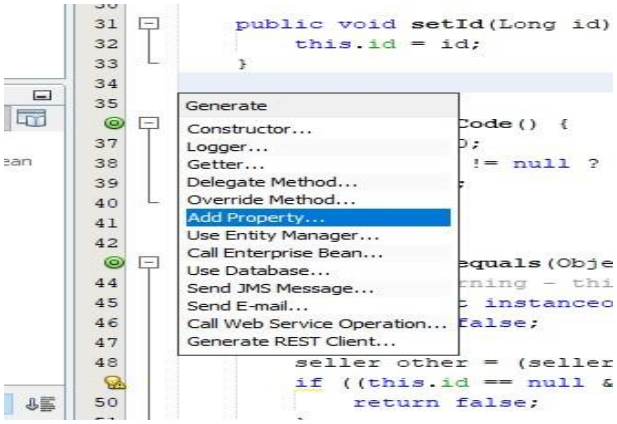
14. Now **open seller.java file under com.kk package**.



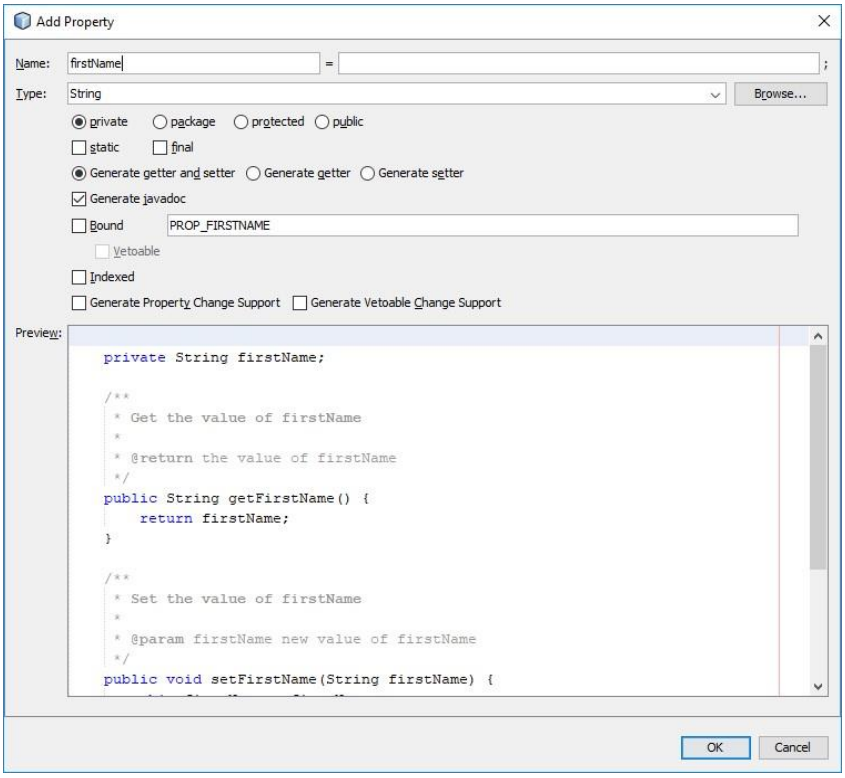
15. In this file **at line number 24**, do the **right click and select Insert Code**.



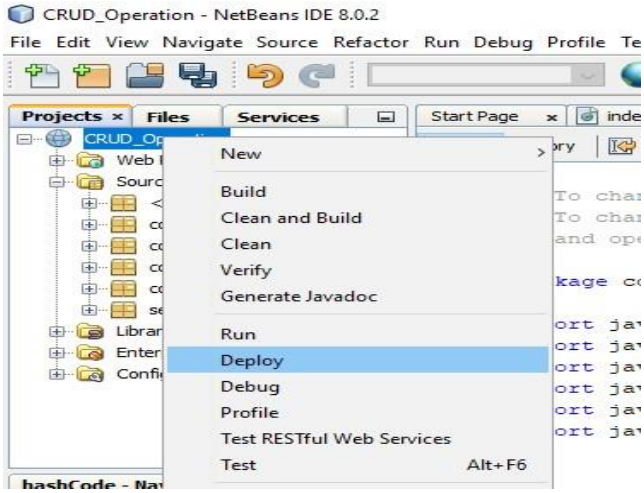
16. A new list will appear. **Click on Add Property**.



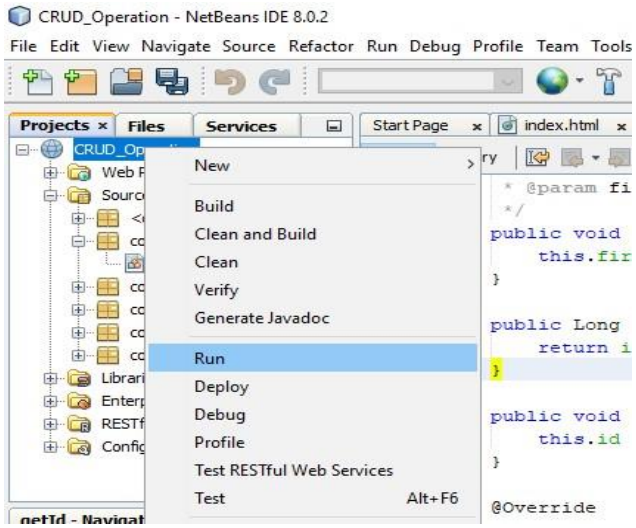
17. A new window will open. Enter name as **firstName**. Make sure name should be exact same as of mine and then **click on OK button**. Actually we are setting getter and setter method for firstName.



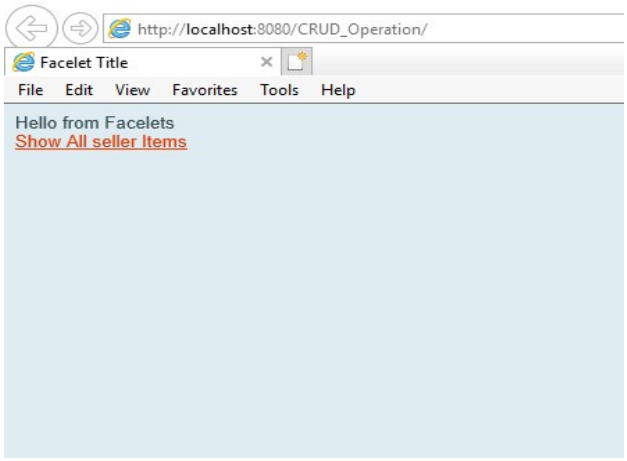
18. Now **right click on web application name and Deploy** it.



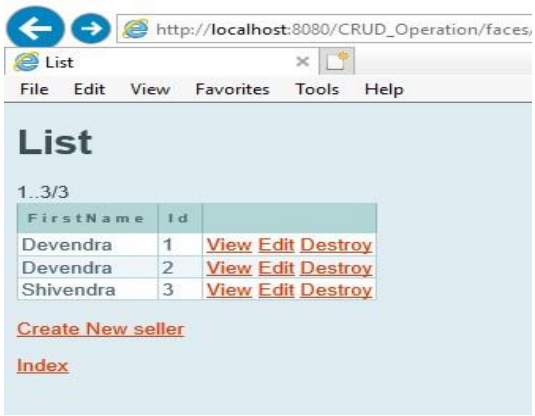
19. Now **right click on project name** and **run** it.



20. A window will open in browser like below….



21. Now **click on Show All sellers** Items for CRUD operation.



22. As I have added three data into database. **You can add more data by click on Create New seller and can view, edit and delete by click on View, Edit and Destroy option**.

23. Adding one more data into database for demo. Just click on Create New seller. **Enter a name into FirstName and id into Id**. Now **click on Save** option to save the data.

24. Now **click on Show All seller Items to view all records** whether our data is entered or not. We can see that one more Shivendra name is appearing.

Practical-8 (Database)

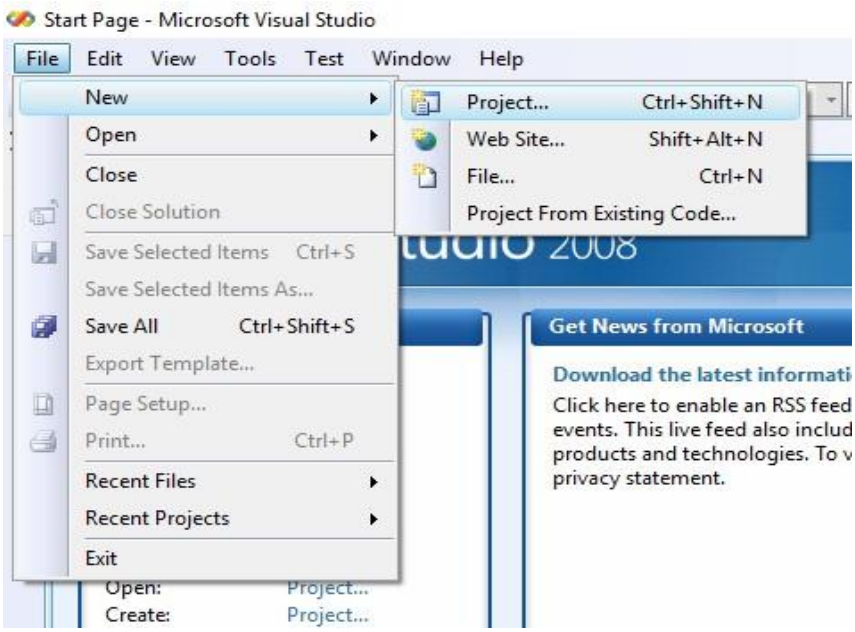
Aim: **Implement a typical service and a typical client using WCF.**

Requirements:

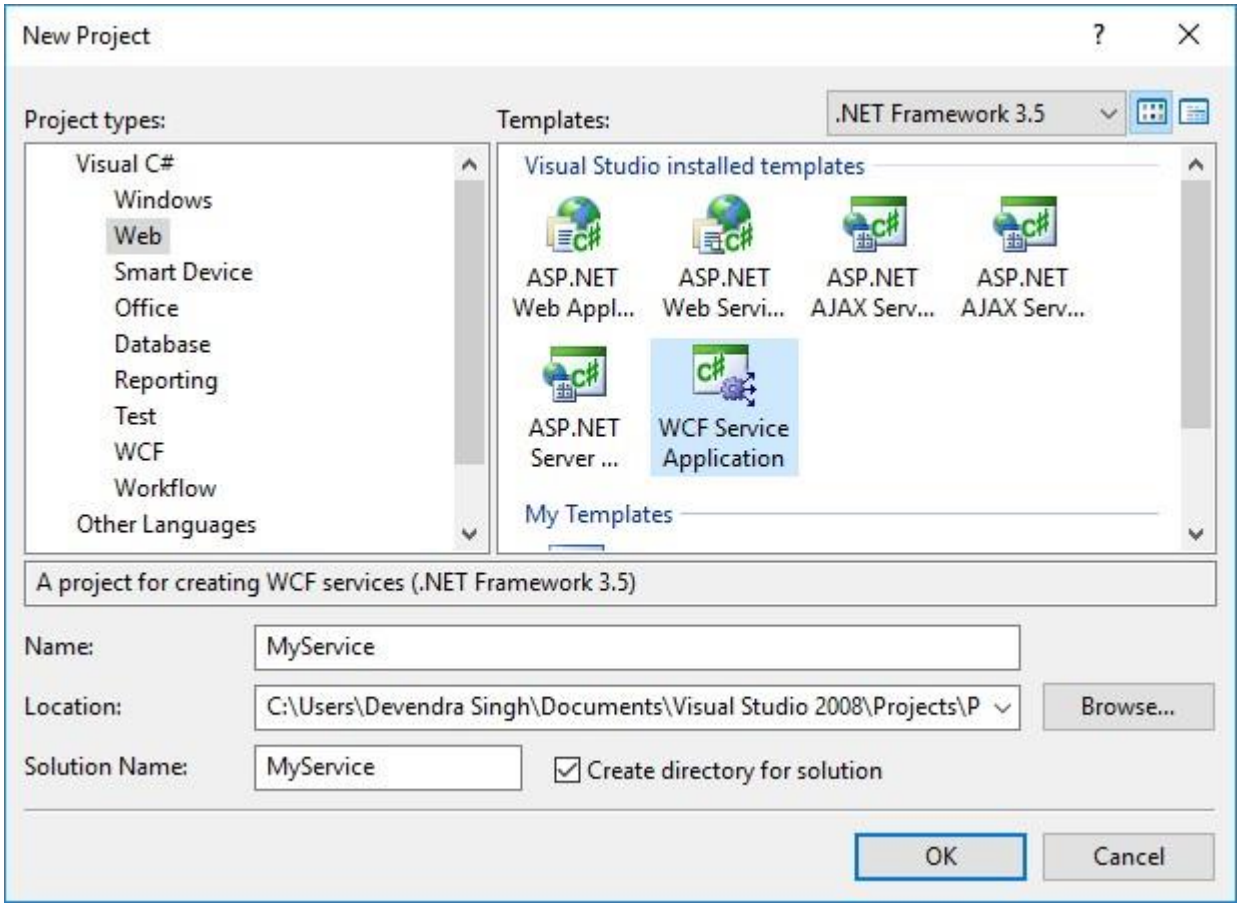
Visual Studio 2008 Professional.

Note: For practical 8, 9 & 10 Visual Studio is mandatory. Because we can implement WCF Service only on Visual Studio.

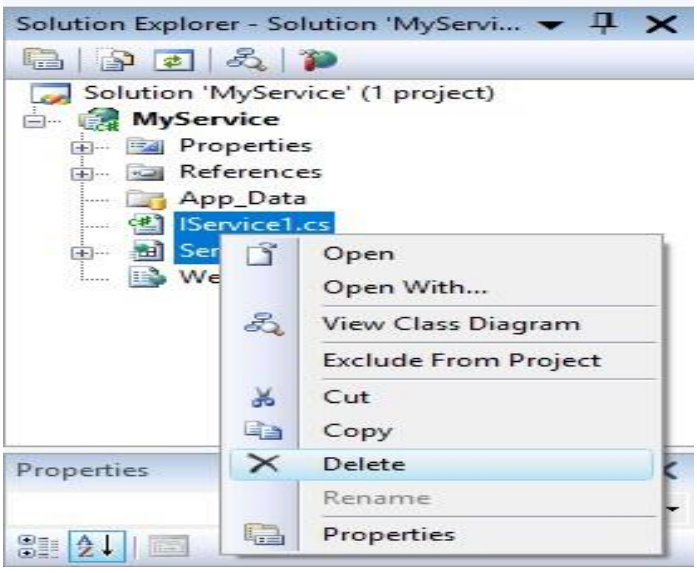
1. **Open Visual Studio and open Project.**



2. In **Project Types, select Web** and in **Templates select WCF Service Application**. Give it **name as MyService and click on OK button**.

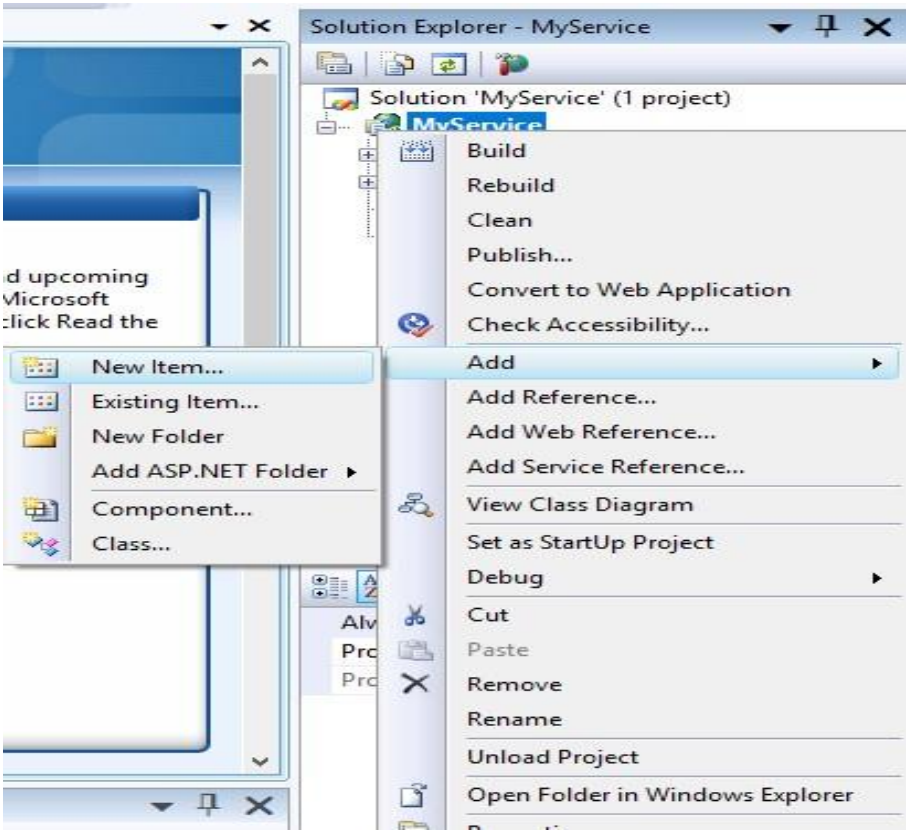


3. **Delete the selected two files** from Solution Explorer placed on right hand side. Actually we are going to delete these files, because this is default WCF Service file and we want to create our own WCF Web Service.

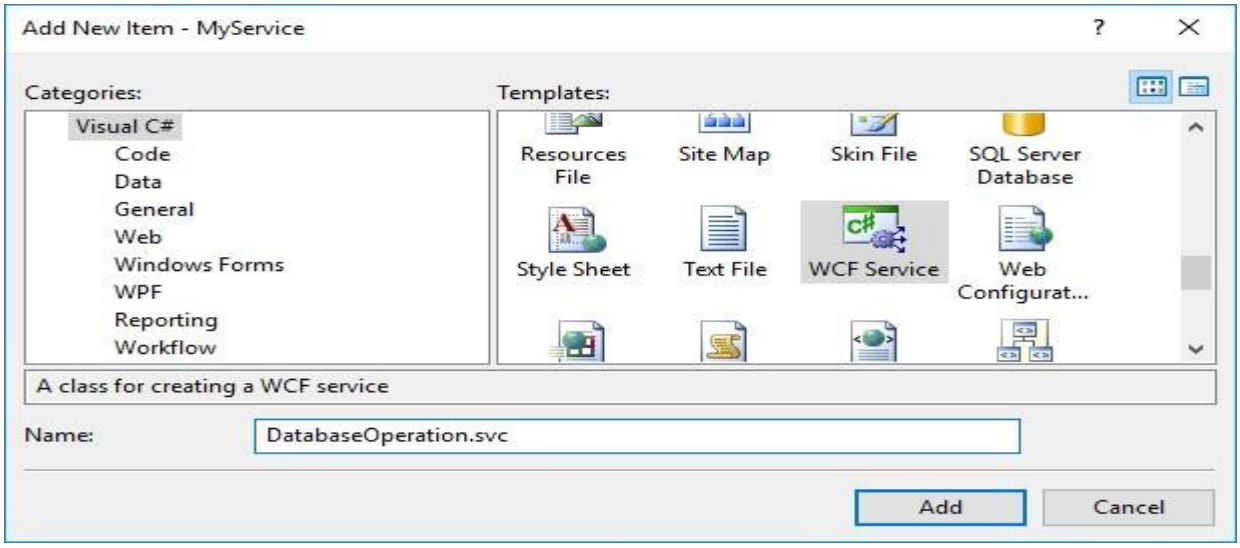


4. Now to create our own WCF web service.

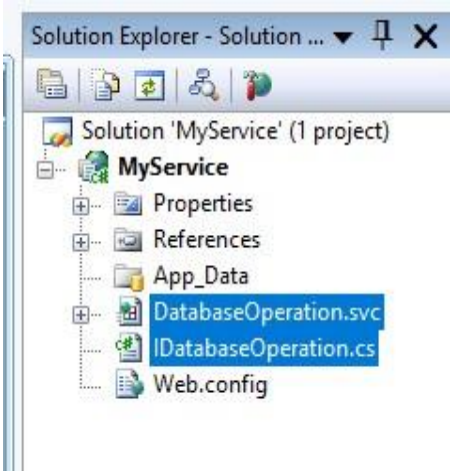
Right click on MyService -> Add -> New Item



5. **Select WCF Service in Templates** and **give its name as DatabaseOperation**. **Press Add** button.



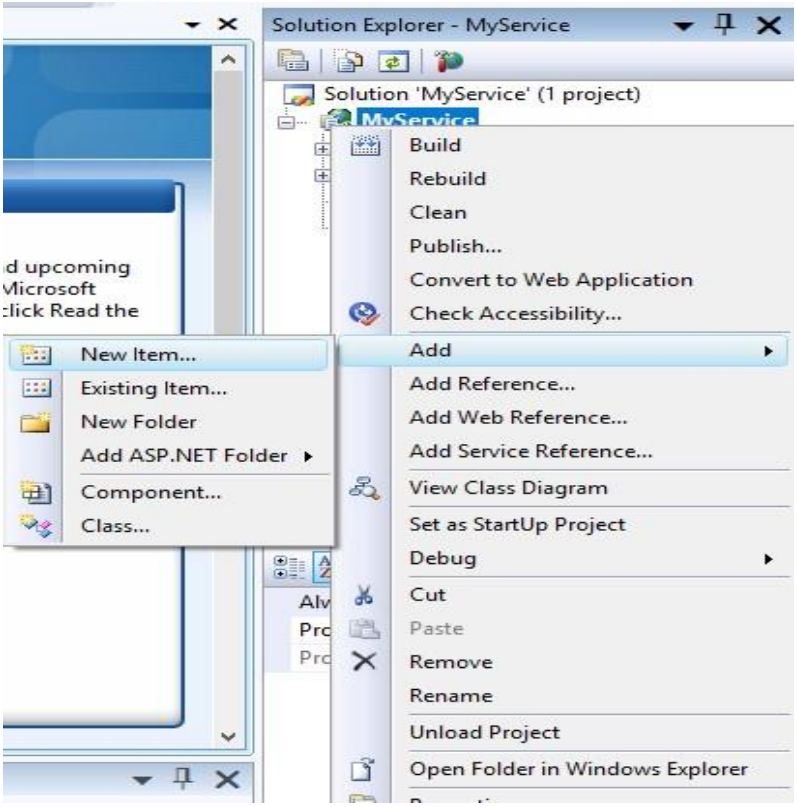
6. You can see **DatabaseOperation service is added in Solution Explorer**.



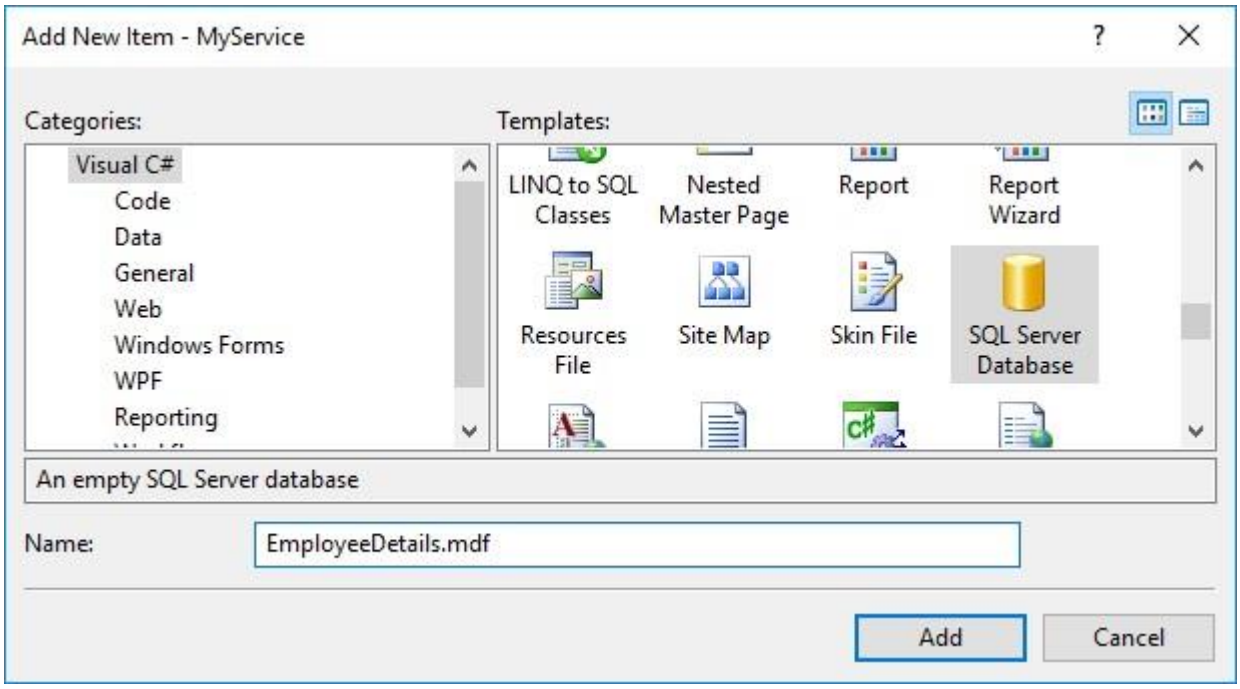
7. Now we are going to create and add a database. On which we will do insert and retrieve operation.

Creating Database with table

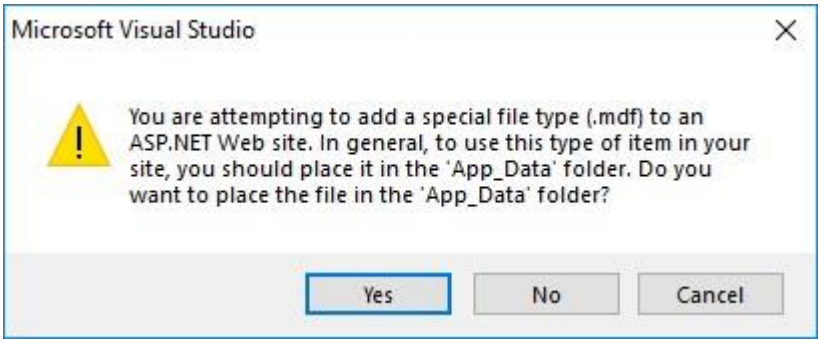
8. Now to create database and table.
   Right click on MyService -> Add -> New Item



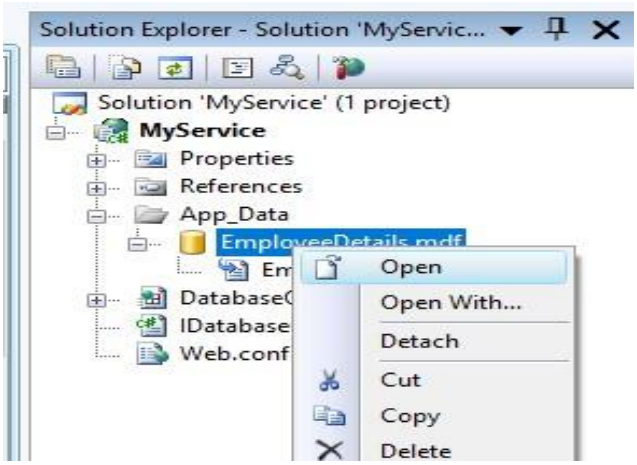
9. **Select SQL Server Database in Templates**. **Give** it **name as EmployeeDetail** and **press Add** button.



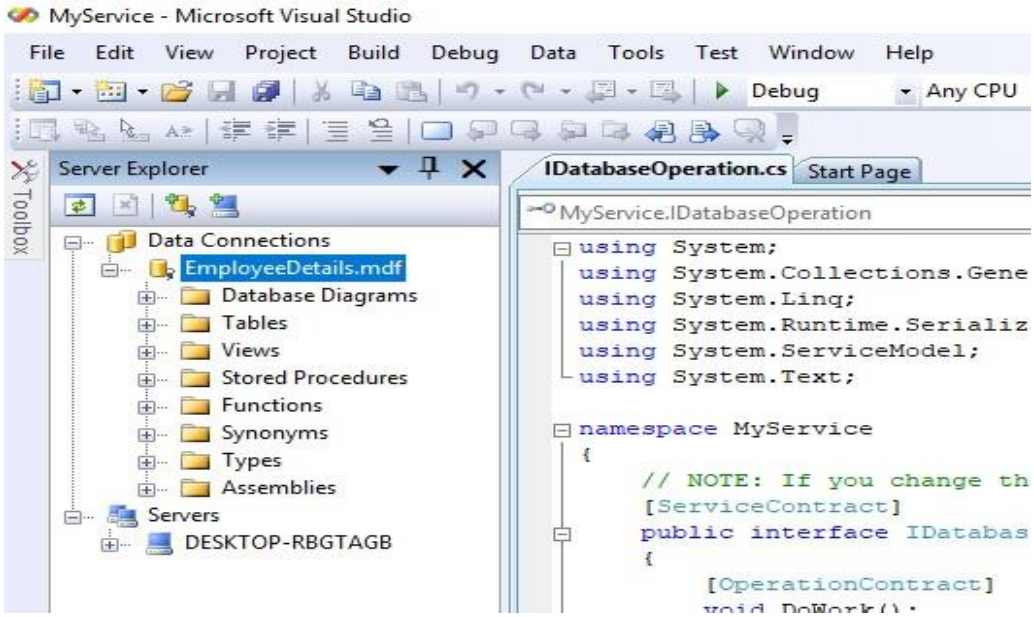
10. **Press Yes**.



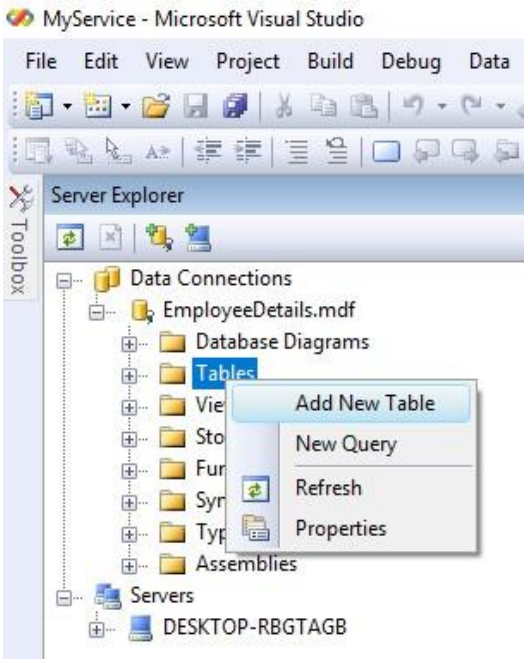
11. **Right click on EmployeeDetail.mdf -> Open**



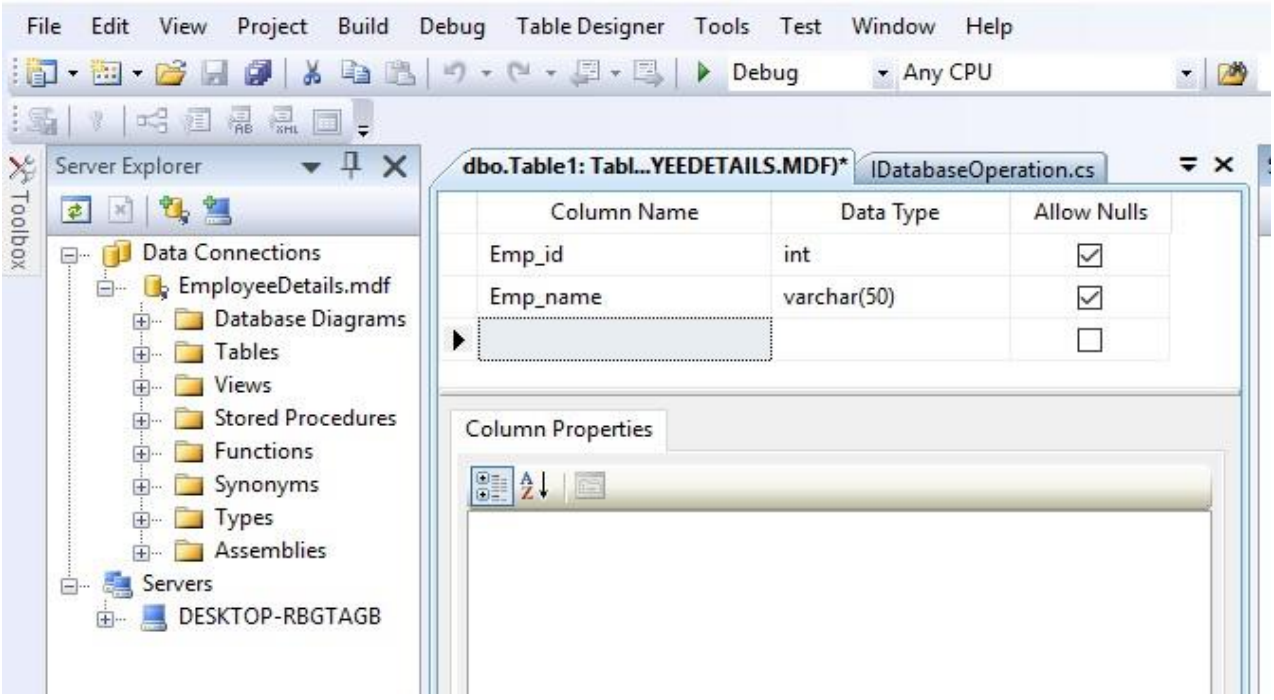
12. As **you can see Server Explorer is opened in the right side** of my screen. Now I will add a table with name Employee.



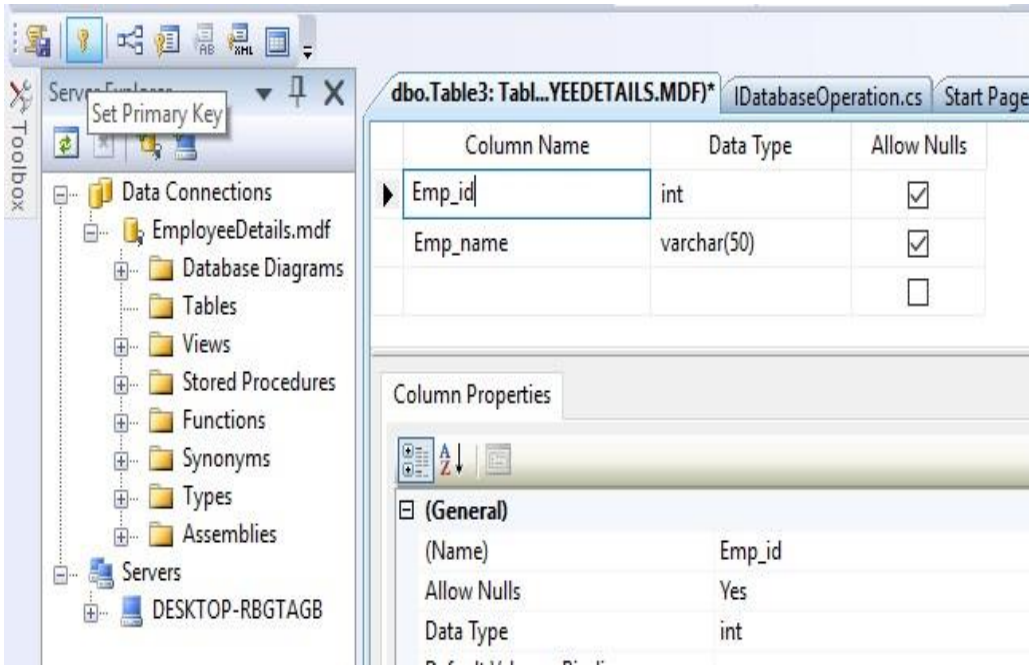
13. Right click on Tables and select Add New Table.



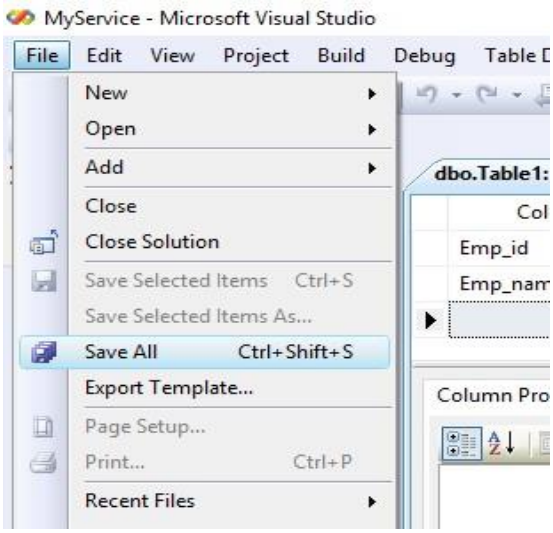
14. Create two columns. One Emp_id and second Emp_name.



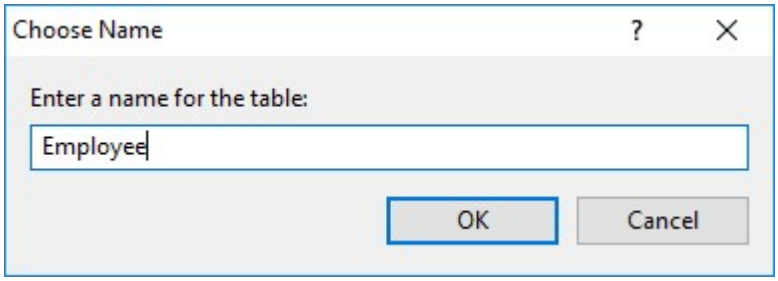
15. Select Emp_id column and **make it as primary key by click on Key icon**.



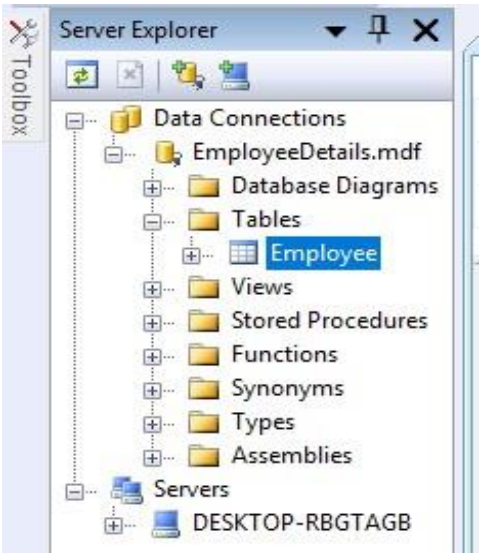
16. Save All.



17. It will ask for table name. **Give Employee name** to it and **press OK**.

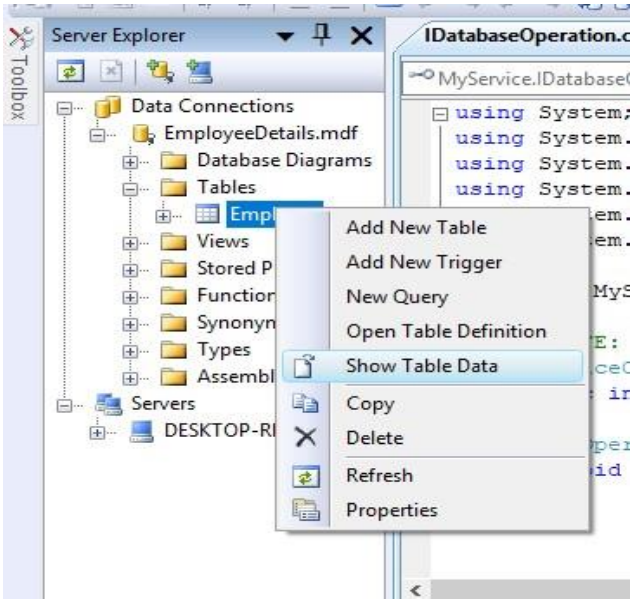


18. You can see a table with Employee name is created.

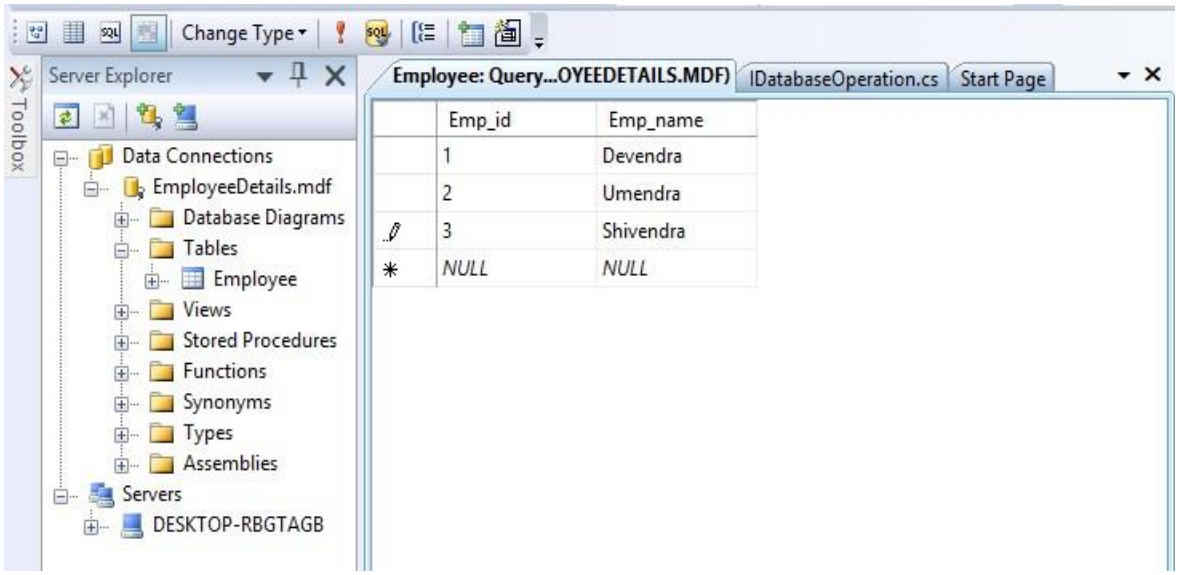


19. Now enter some data into this table.

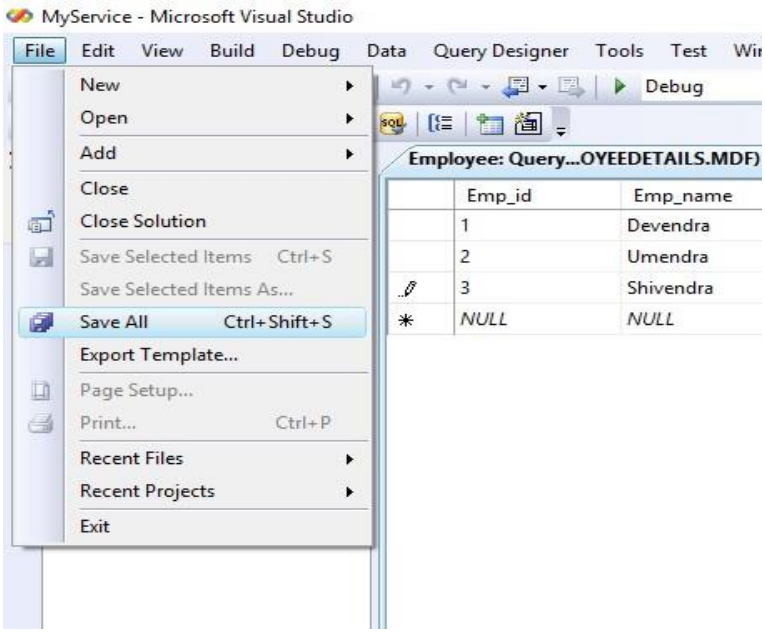
Right click on Employee -> Show Table Data



20. As **Emp_id is primary key**, **so do not repeat it**.

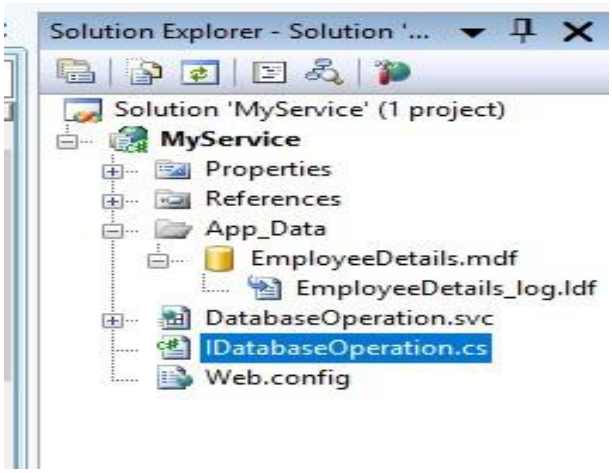


21. Now **again Save All**.

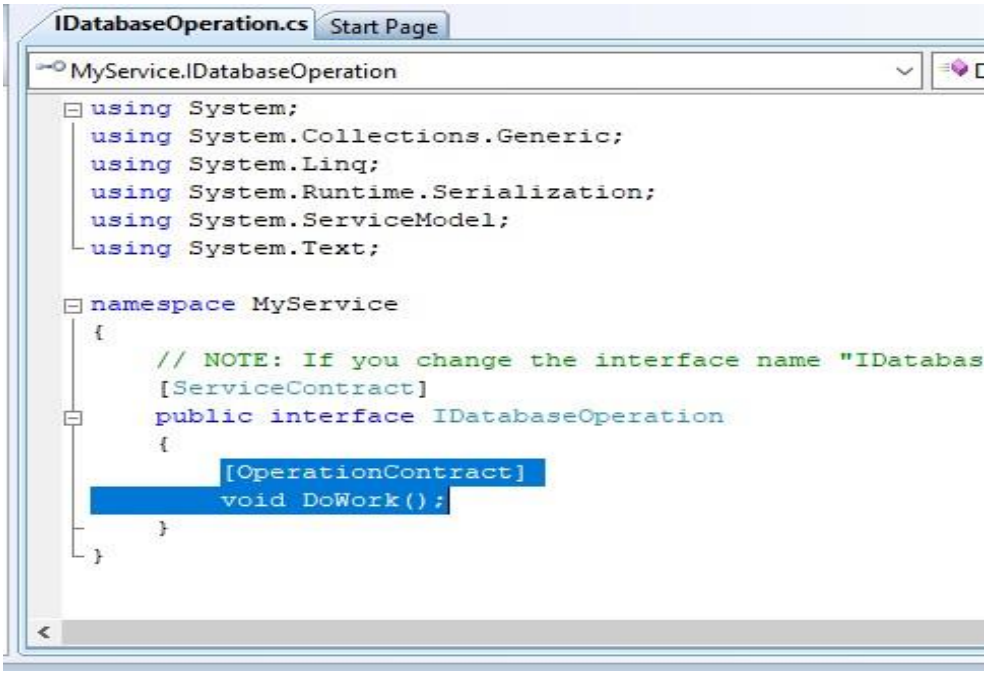


22. So in this way we have created required database with table. Now we are going to connect this database to WCF service. So we can do operations on it.

23. **Double click on IDatabaseOperation.cs** file to open it and inserting some code.

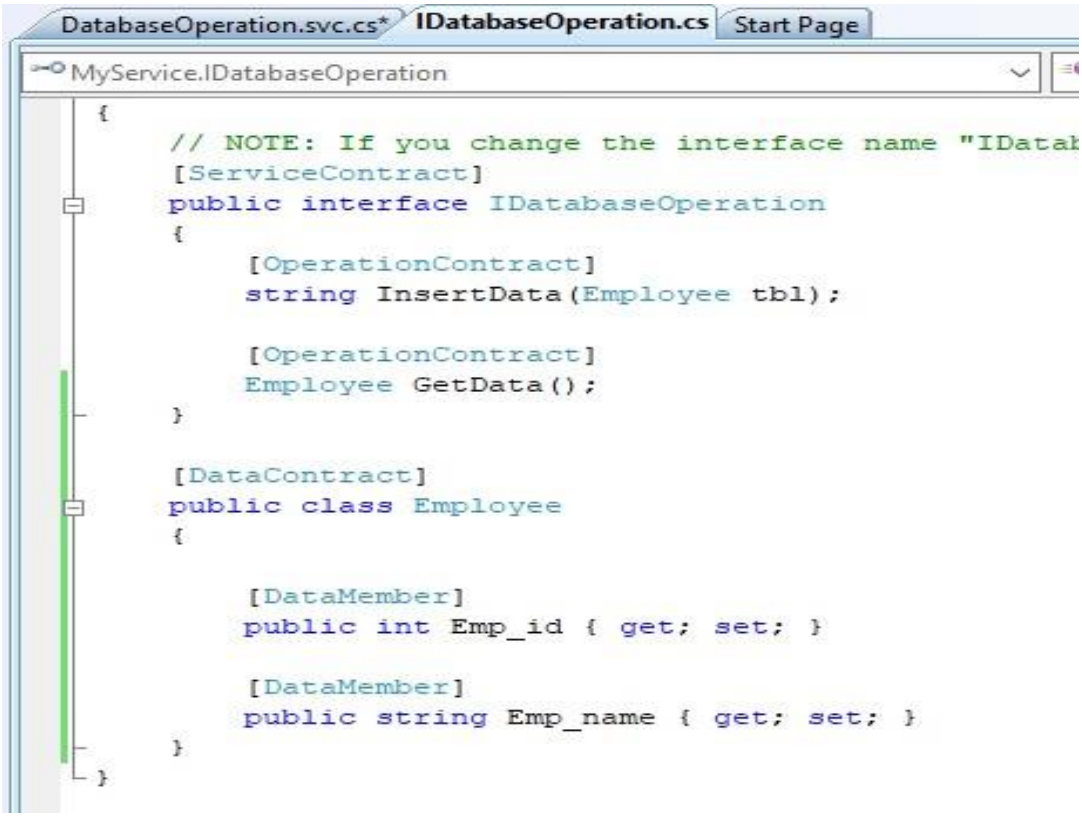


It will look like below.

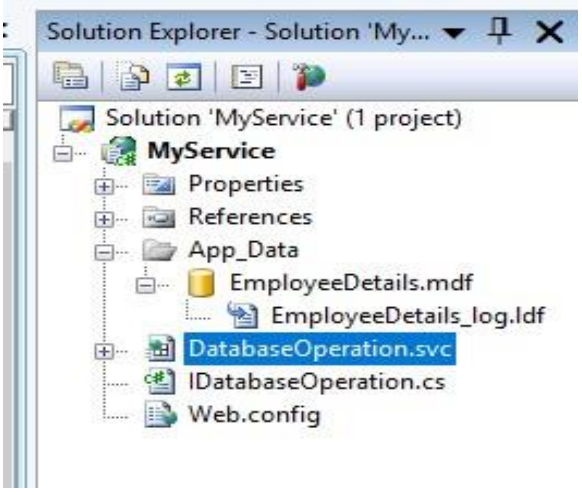


24. Now **add the following code into above selected part** and **press Ctrl+S** to save the changes.

```
    [OperationContract]
    string InsertData(Employee tbl);

    [OperationContract]
    Employee GetData(int Emp_id);
}

    [DataContract]
public class Employee
    {

        [DataMember]
        public int Emp_id { get; set; }

        [DataMember]
        public string Emp_name { get; set; }
```

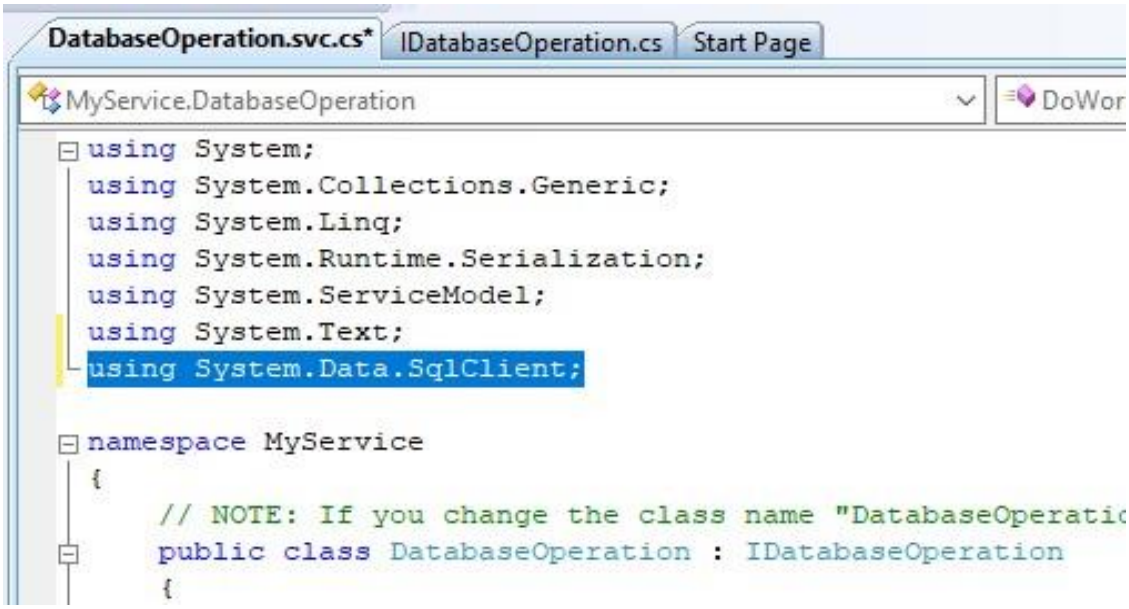


25. Now **open DatabaseOperation.svc.cs** file by **double click on selected file**.



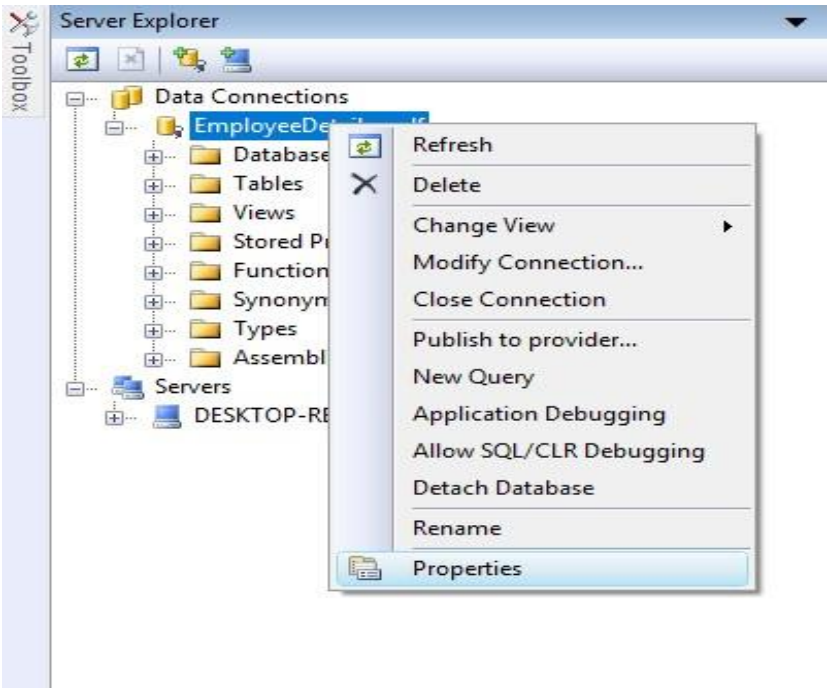
26. Now **import following package**.

```
using System.Data.SqlClient;
```

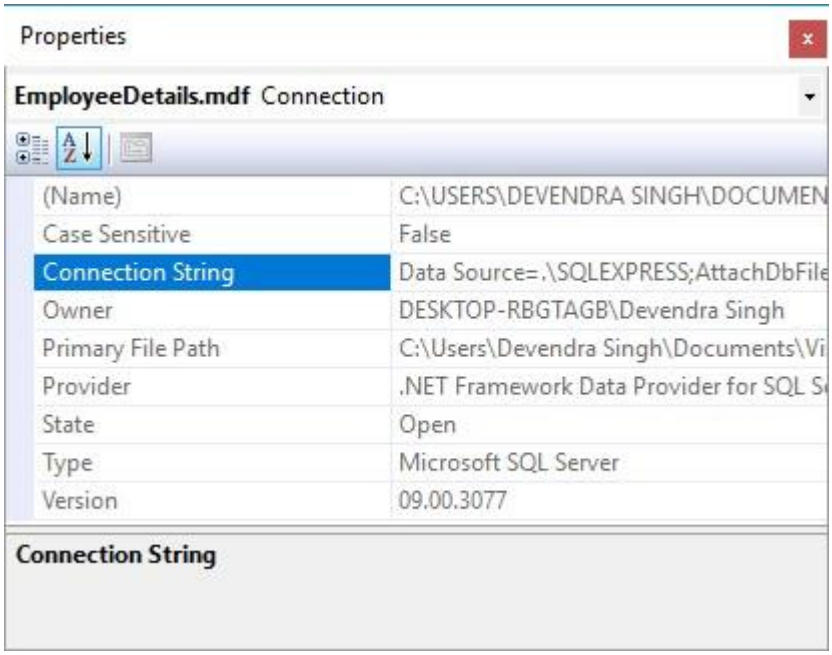


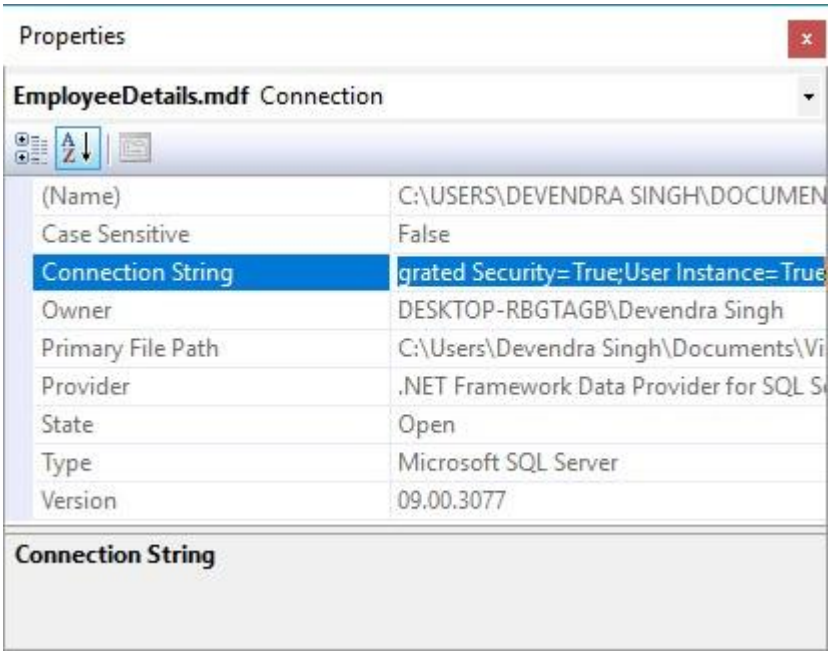
Before giving code, I'm going to tell you that how we get the database link which is used to connect with database.

If database is not open, then **open it by follow step 11**. **Right click on EmployeeDetails.mdf -> Properties**.



Copy the full link in Connection String.





Below is copied link.

Data Source=.\SQLEXPRESS;AttachDbFilename="C:\Users\Devendra Singh\Documents\Visual Studio 2008\Projects\Project1\MyService\MyService\App_Data\EmployeeDetails.mdf";Integrated Security=True;User Instance=True

But **above link is not appropriate to use**. **So to make it appropriate link by replacing \ to \\ and replace " to '.**

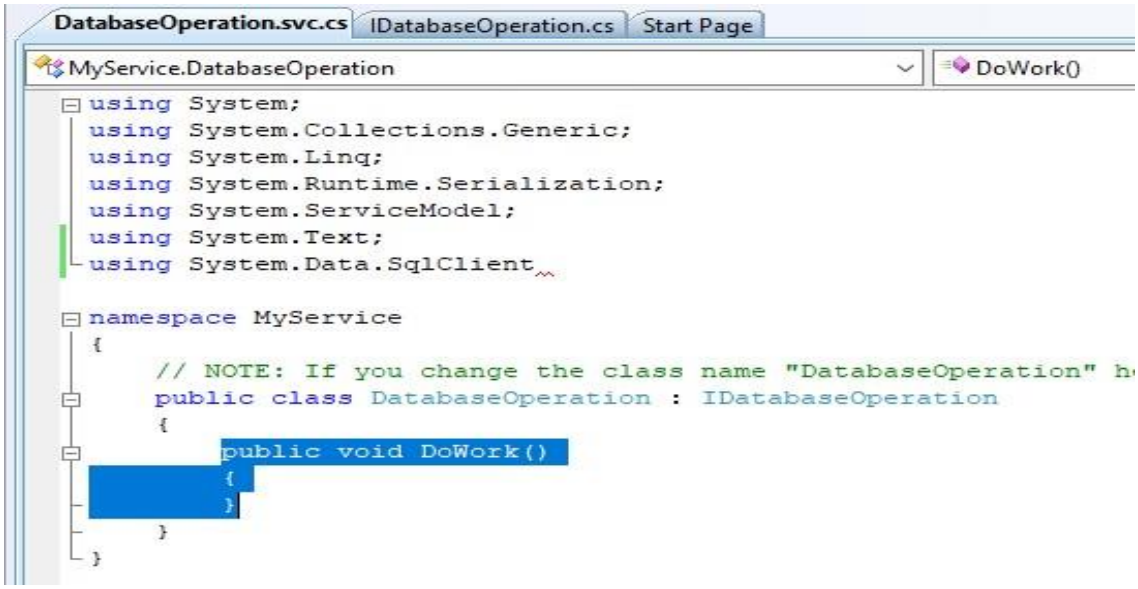
Appropriate link will be as bellow….

Data Source=.\\SQLEXPRESS;AttachDbFilename='C:\\Users\\Devendra Singh\\Documents\\Visual Studio 2008\\Projects\\Project1\\MyService\\MyService\\App_Data\\EmployeeDetails.mdf';Integrated Security=True;User Instance=True

In above link red marked parts are the changes to make it appropriate and I will use this link for connection establishment.

Note: I have changed from " to '. Because I will paste this link between " ". If you will paste it in ' ' , then don't make any changes in link for ". Leave as it is. Just change the \ only.

27. Resuming from step 26.



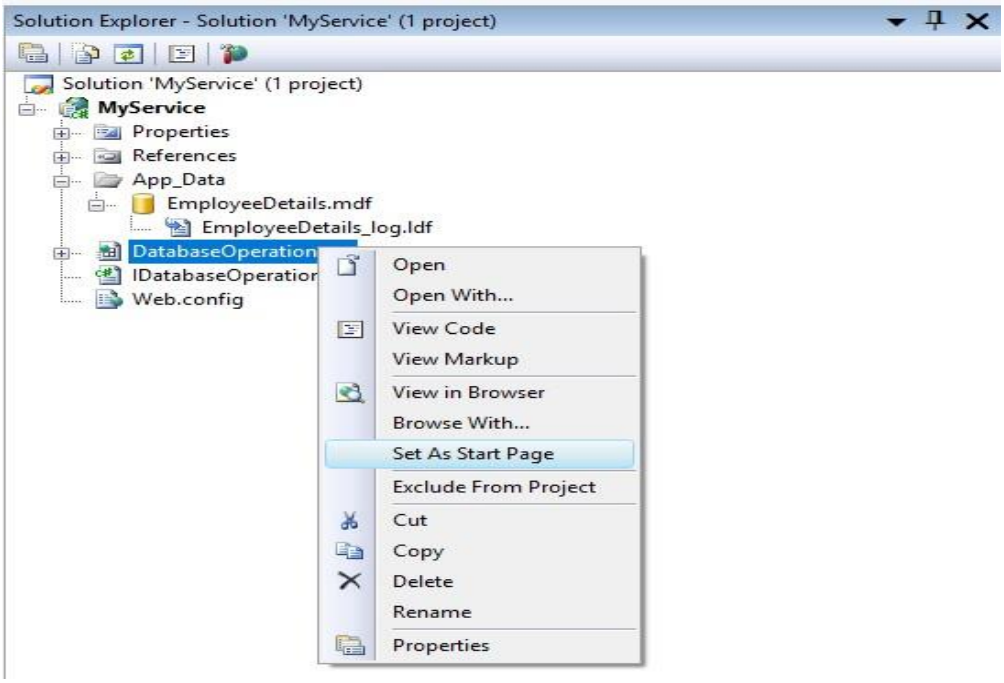
28. Now **add the following code into selected part in above pic**. And **press Ctrl+S** to save the changes.

```
public string InsertData(Employee tbl) {

            string resp;

            SqlConnection con = new SqlConnection("Data
Source=.\\SQLEXPRESS;AttachDbFilename='C:\\Users\\Devendra
Singh\\Documents\\Visual Studio
2008\\Projects\\Project1\\MyService\\MyService\\App_Data\\Employ
eeDetails.mdf';Integrated Security=True;User Instance=True");
            SqlCommand cm = new SqlCommand("insert into
Employee(Emp_id,Emp_name) values (@Emp_id, @Emp_name)", con);
cm.Parameters.AddWithValue("@Emp_id", tbl.Emp_id);
cm.Parameters.AddWithValue("@Emp_name", tbl.Emp_name);
con.Open();
            int res = cm.ExecuteNonQuery();
if (res == 1)
            {
                resp = "Data inserted";
            }
else             {
                resp = "Data not inserted";
```

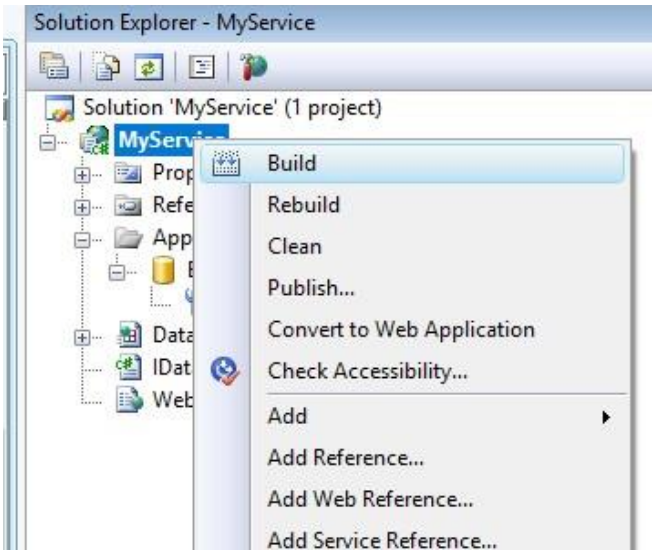
```
            }
con.Close();
return resp;

        }
        public Employee GetData(int Emp_id) {

            Employee tbl = new Employee();

            SqlConnection con = new SqlConnection("Data
Source=.\\SQLEXPRESS;AttachDbFilename='C:\\Users\\Devendra
Singh\\Documents\\Visual Studio
2008\\Projects\\Project1\\MyService\\MyService\\App_Data\\Employ
eeDetails.mdf';Integrated Security=True;User Instance=True");
            SqlCommand cm = new SqlCommand("select * from Employee
where Emp_id = @Emp_id", con);
            cm.Parameters.AddWithValue("@Emp_id",Emp_id);

            con.Open();
SqlDataReader data;              data =
cm.ExecuteReader();

            if (data != null)
            {
                if (data.Read())
                {
                    tbl.Emp_id = (int)data["Emp_id"];
tbl.Emp_name = data["Emp_name"].ToString();
                }
else                 {
                    tbl = null;
                }
}
con.Close();
return tbl;
        }
```

NOTE: Use your own database link in sqlConnection() method in above code.

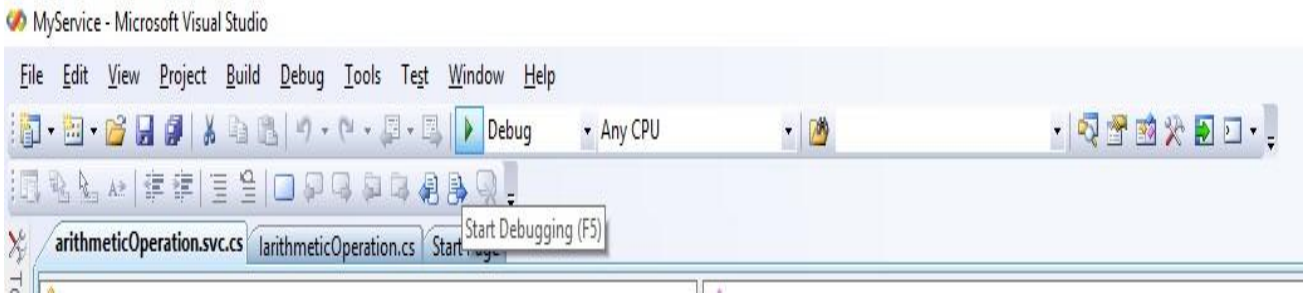
29. Now **make DatabaseOperation.svc file as start page**.



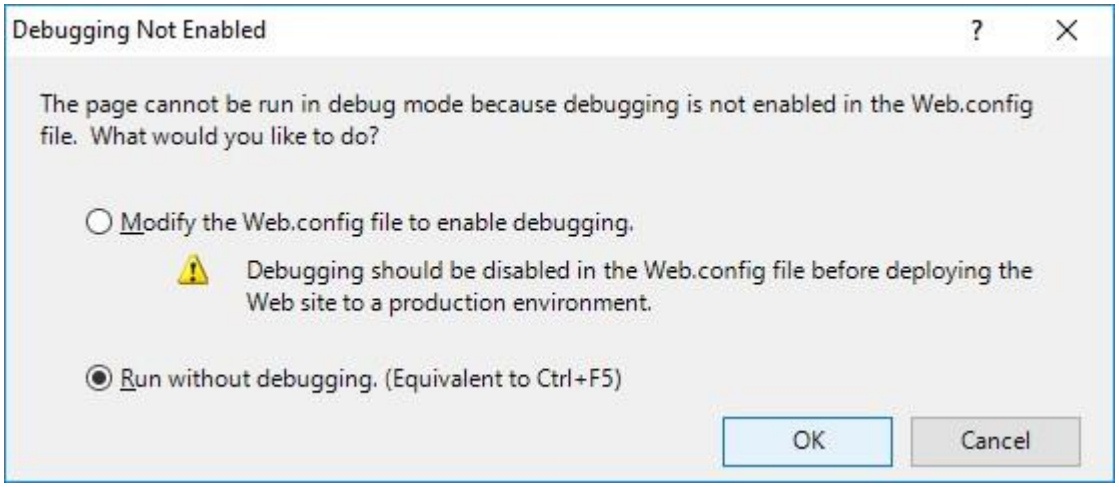
30. Now **right click on MyService** in Solution Explorer and **select Build** to build the project.



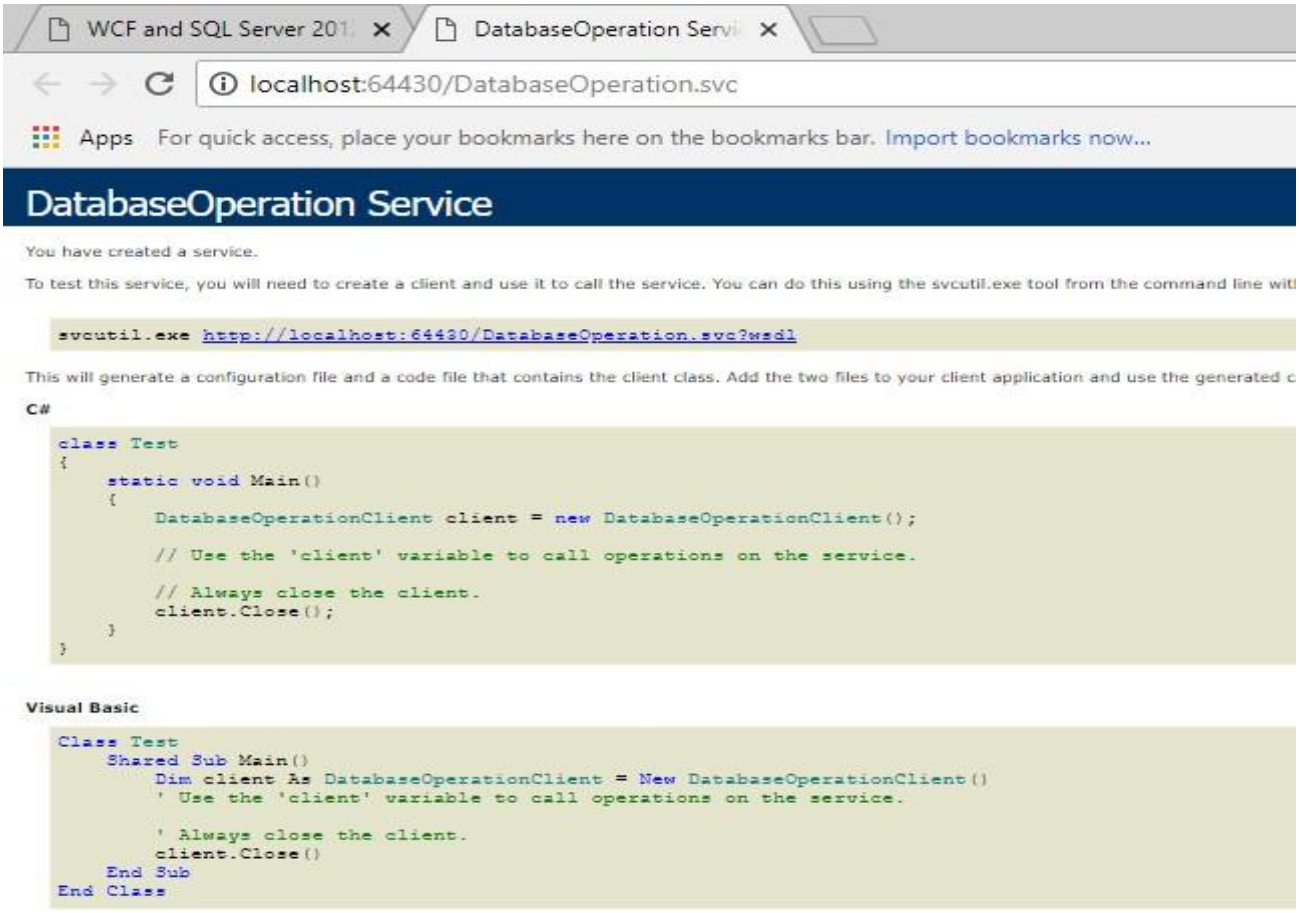
31. Now **click on run button** to run the project.



32. If any window appears like below then **select Run without debugging** and **click on OK** button.



33. A new window will open in browser like below.

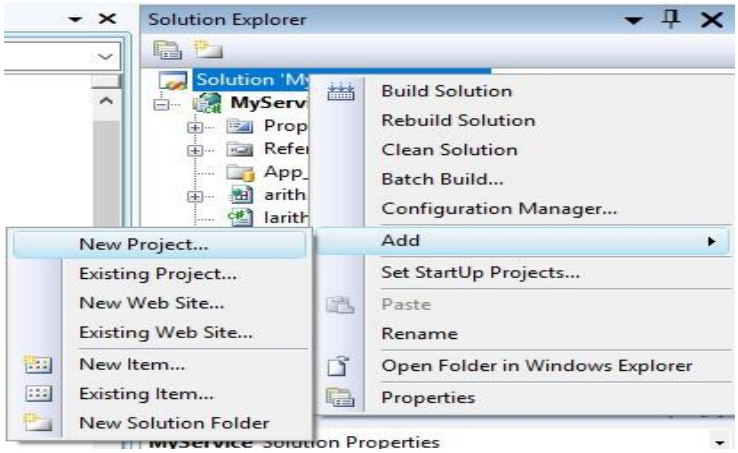


34. Now **copy the URL**. As in my case it is….

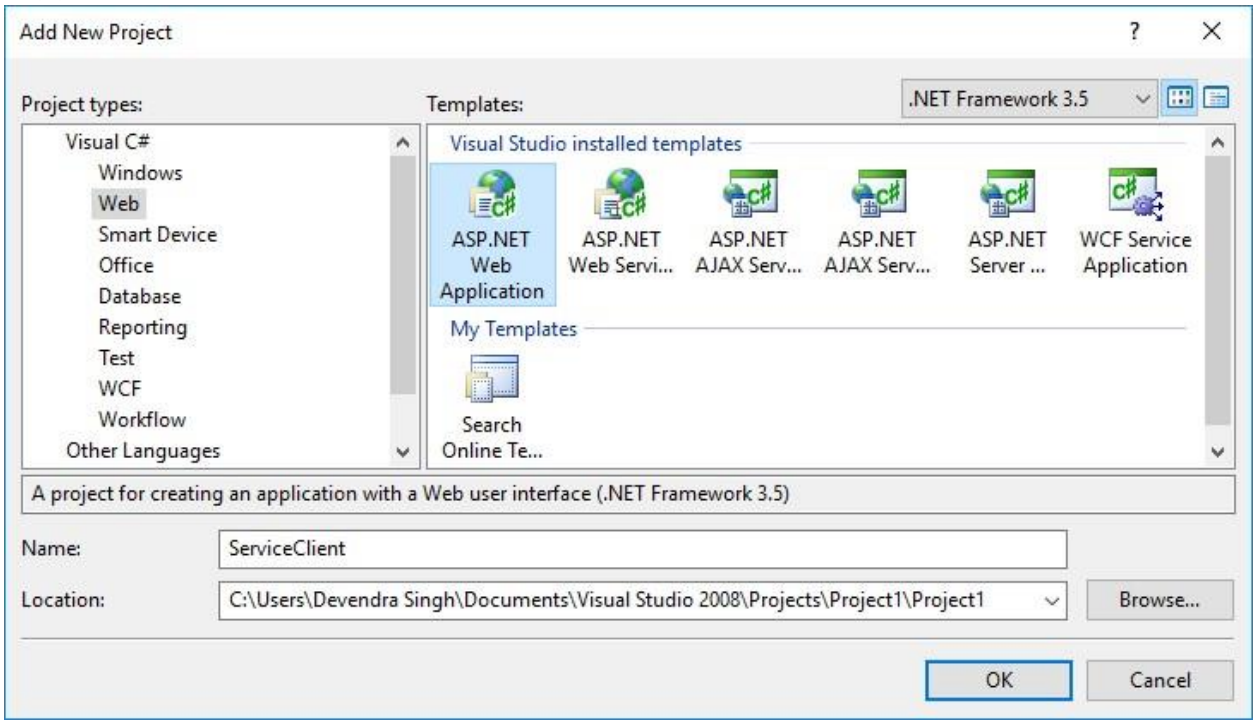
http://localhost:64430/DatabaseOperation.svc

35. Now take care, you can close the browser. But don't close the Solution Explorer or Visual Studio, otherwise inbuilt server will stop and you will get error during consuming this service. Even, you have to create the client within the same Solution Explorer. To solve this problem we can host this service on IIS. But it will take more steps and for our practical we don't need this.

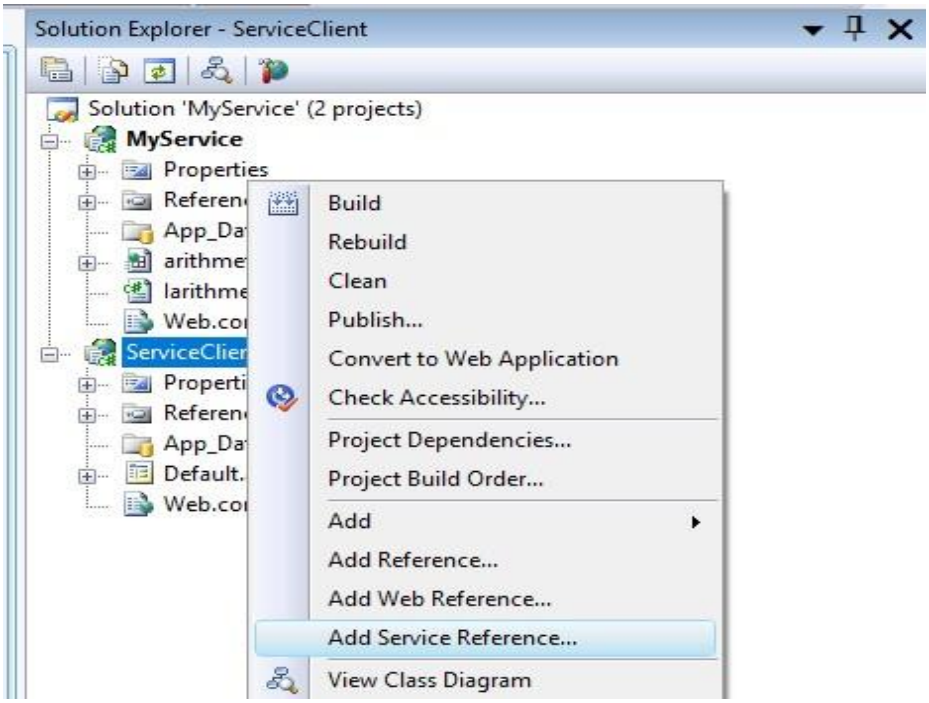
36. Now **right click on solution explorer** and **add a new project** to create client.



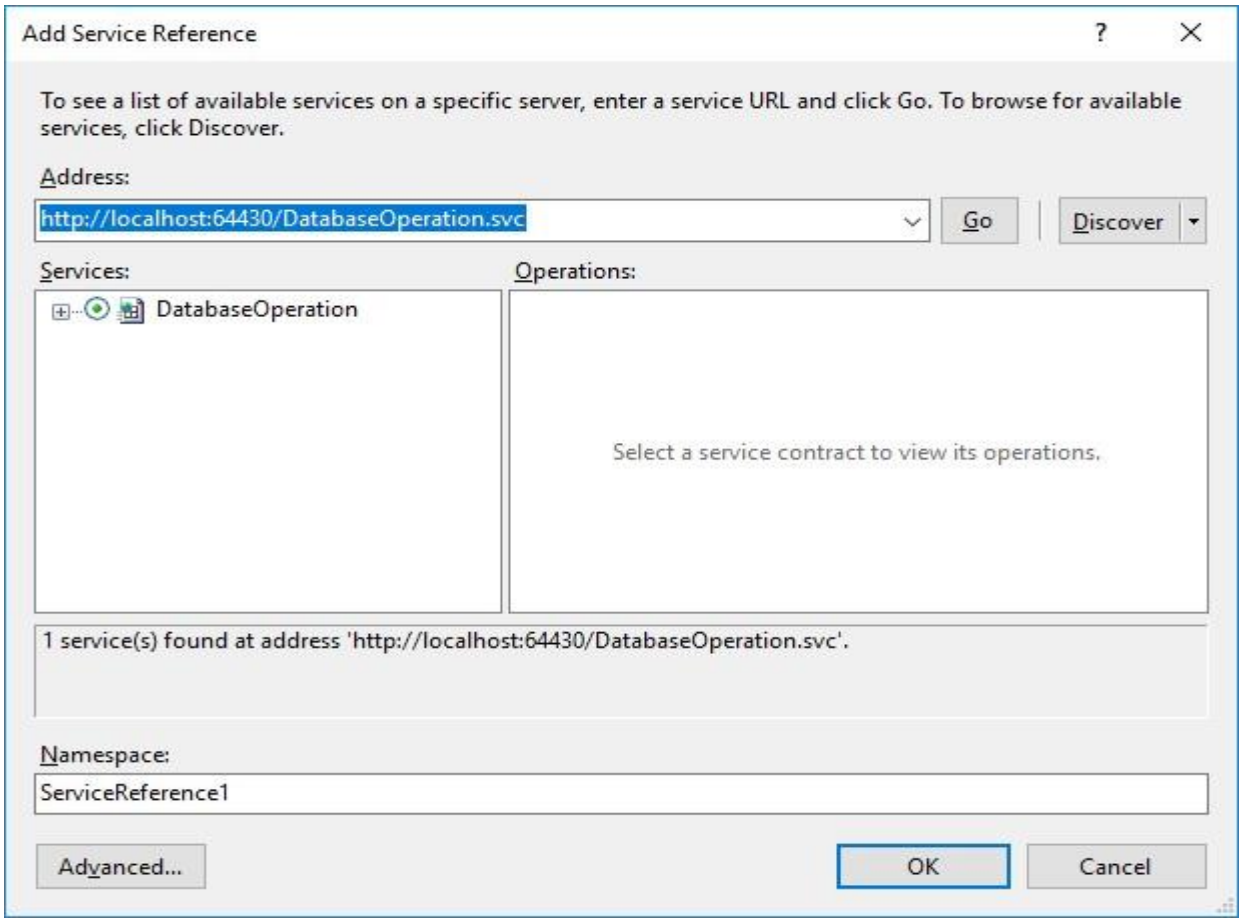
37. **In Project Type select Web** and **in Templates select ASP.Net Web Application**. Give it **name as ServiceClient** and then **click on OK** button.



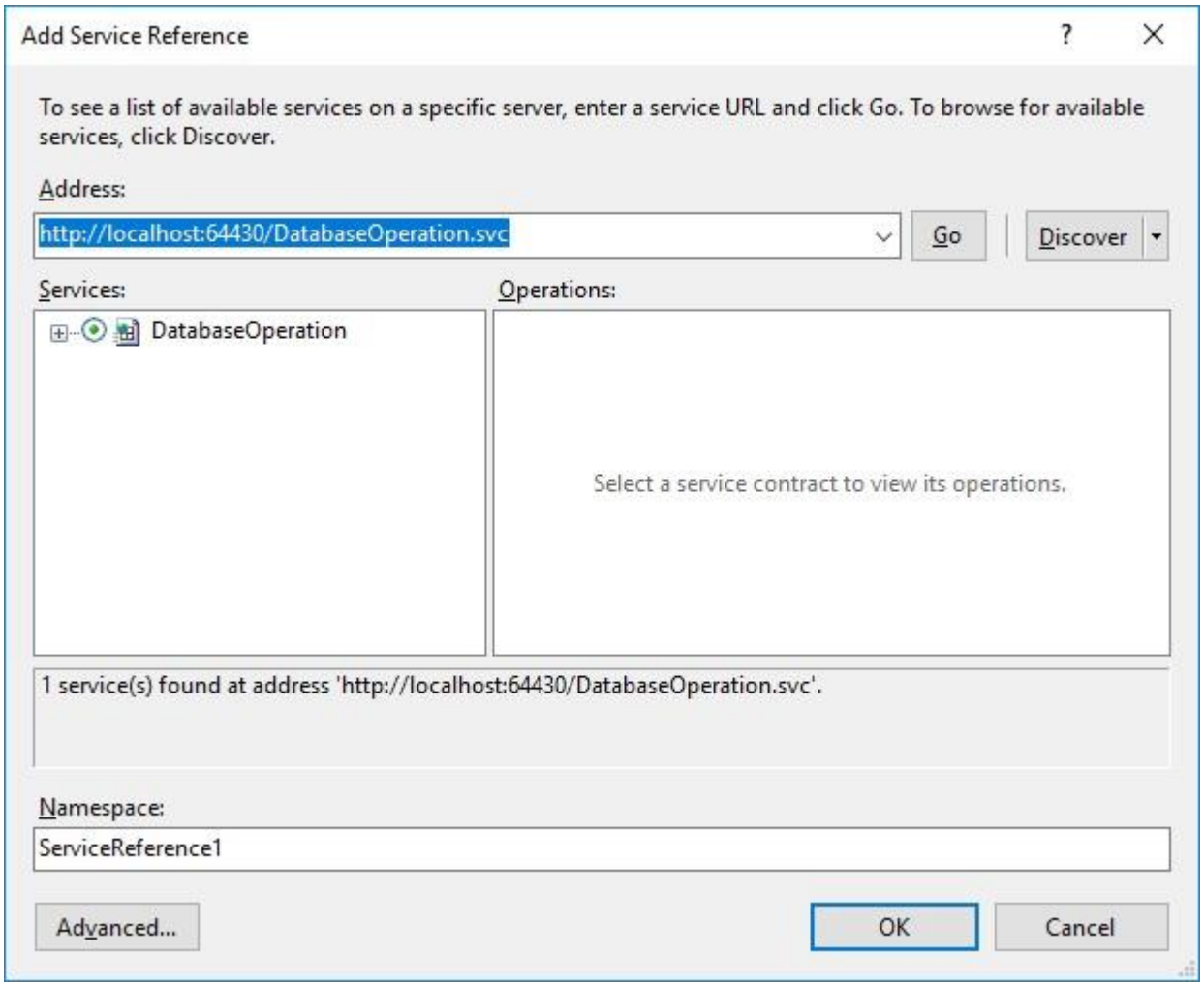
38. **Right click on Service ServiceClient** in Solution Explorer and **select Add Service Reference**.



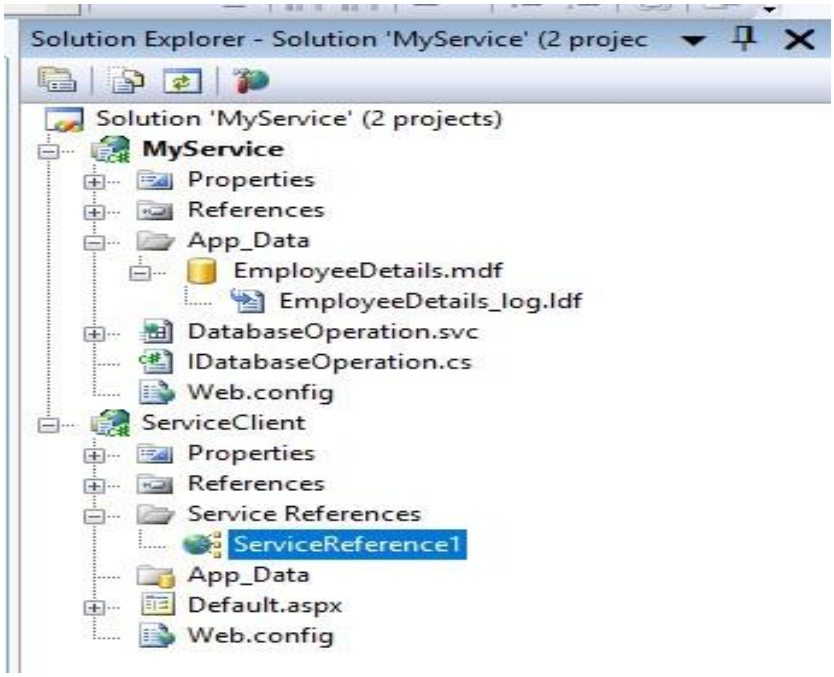
39. Paste the copied link into Address and **click on Go button**.



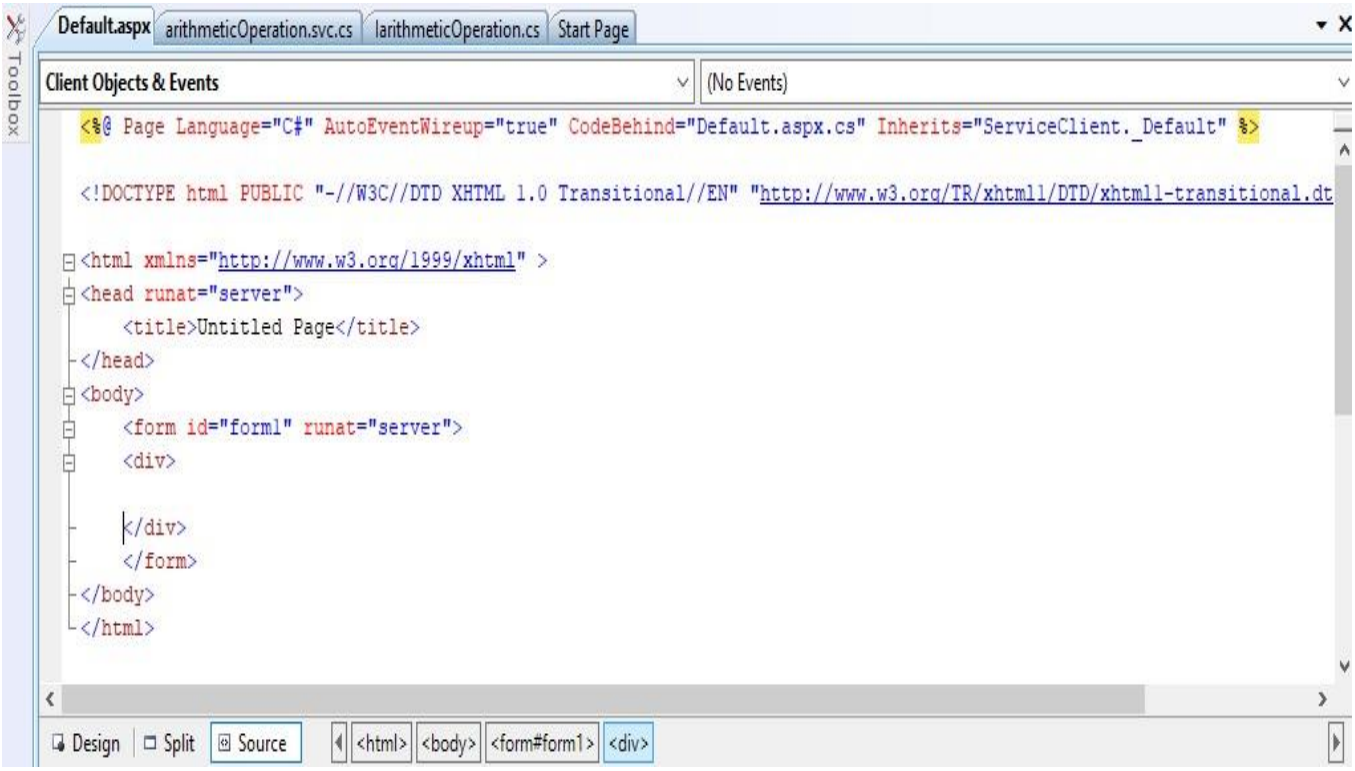
40. As you can see DatabaseOperation Service is fetched. Now I'm leaving **Namespace as it is i.e. ServiceReference1**. Actually this namespace will be used to call the Service methods. If you will change it then you have to use the according namespace to call the service methods. **Click on OK** button.



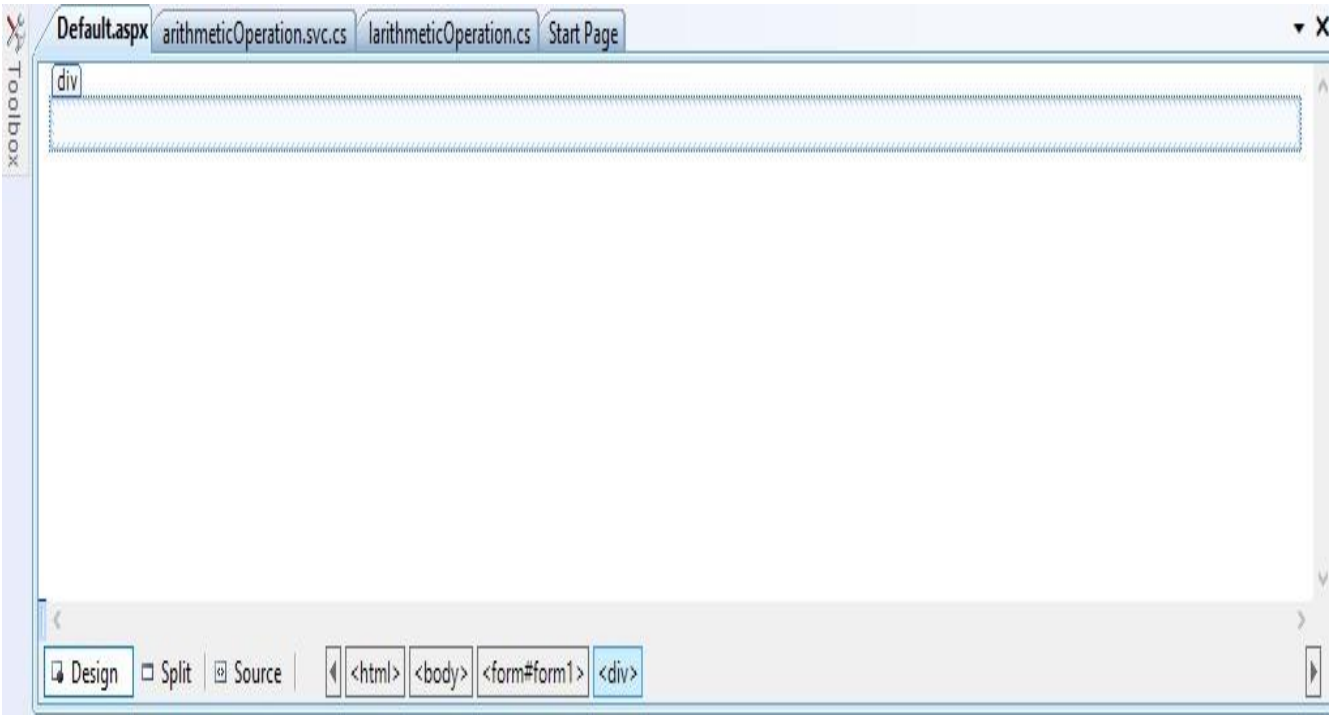
41. As you can see Service Reference is added with Namespace in Solution Explorer.



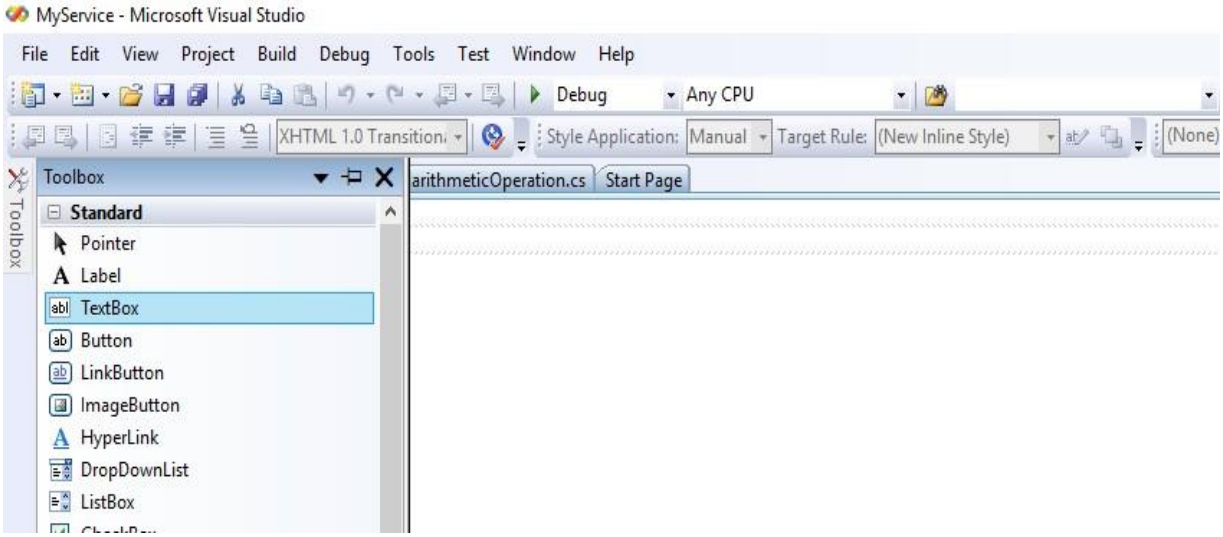
42. **Default.aspx page of ServiceClient** will appear by default in Source mode. Otherwise you can **open it from solution explorer**.



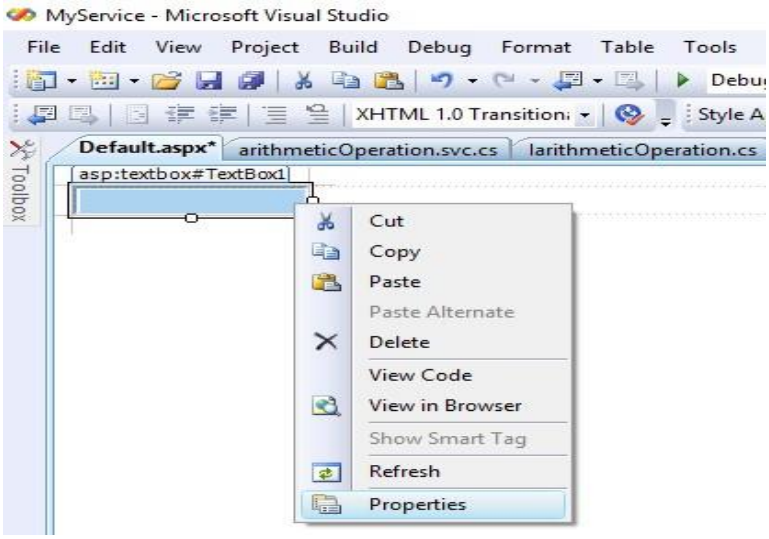
43. Now go to design mode by **click on Design**.



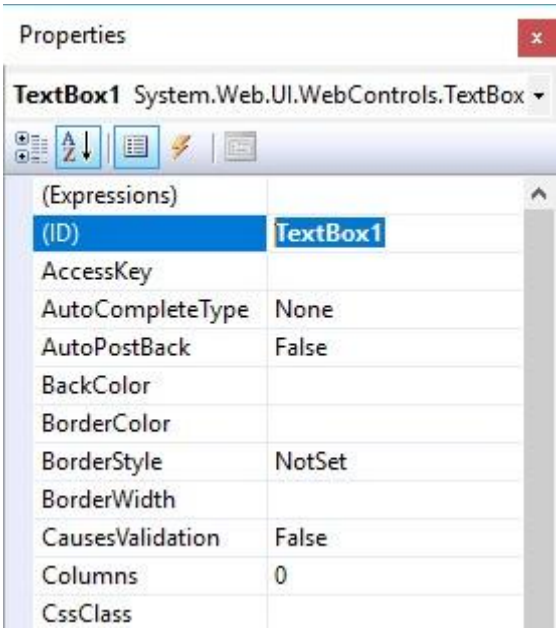
44. Now **click on Toolbox** on the top-left in above pic to add components. To add a textbox **select TextBox** from Toolbox and **drag it into the screen** that is appearing as blank.



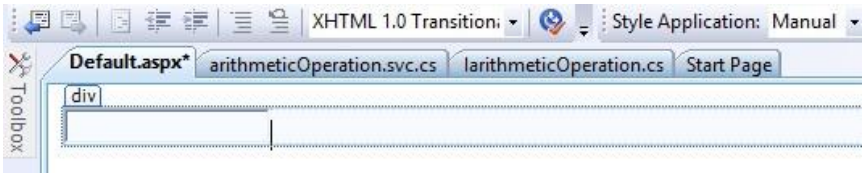
45. As you can see a TextBox is added to page. **Right click on it** and **select Properties to set it's ID**.



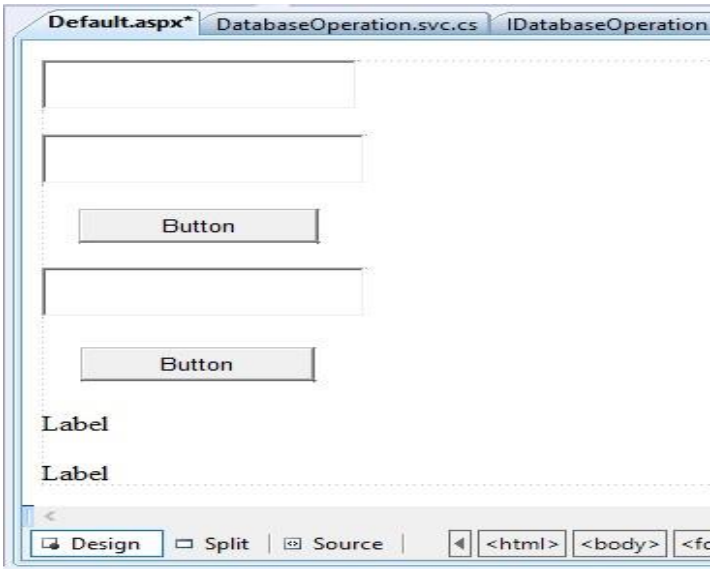
46. Property list of selected TextBox will open and you can see its ID is TextBox1. I'm going to leave it as it is. So its ID is TextBox1. You can change its ID, But accordingly it will change in C# program, where we will fetch the values of textboxes using its ID.



47. Now **click after textbox and press two times enter key to create vertical space between two textboxes**.

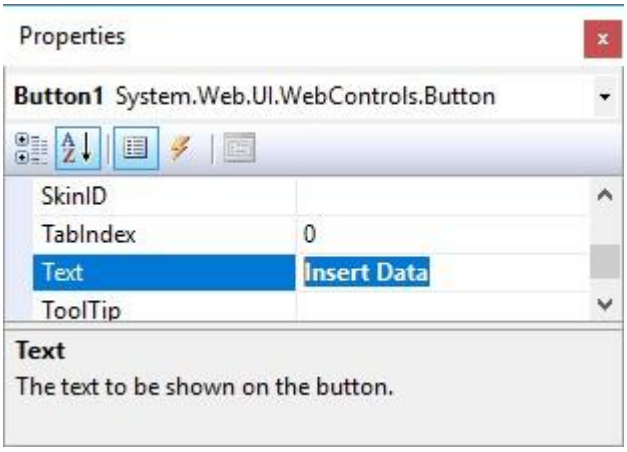


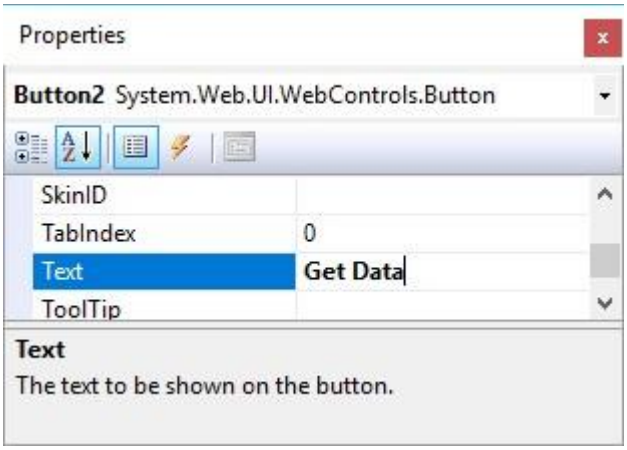
48. **Using step 44 and 47 adding two more textboxes, Buttons, Labels**. After that it will look like below.



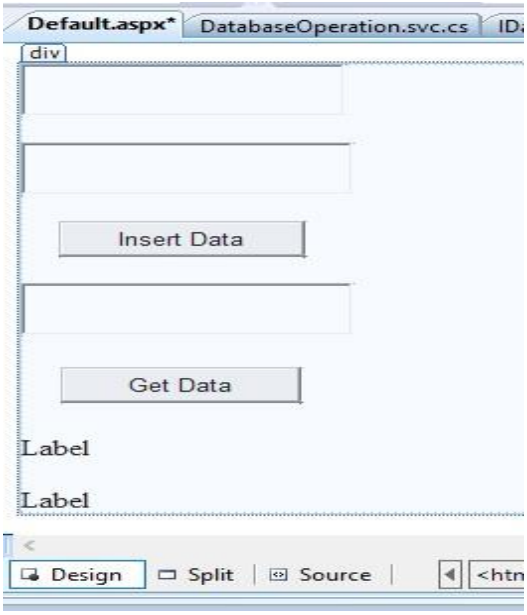
49. Now changing the text of 1st and 2nd buttons.

Right click on 1st button -> Properties -> Text = Insert Data Right click on 2nd button -> Properties -> Text = Get Data





Screen will look like below.



Default ID for each components will be following….

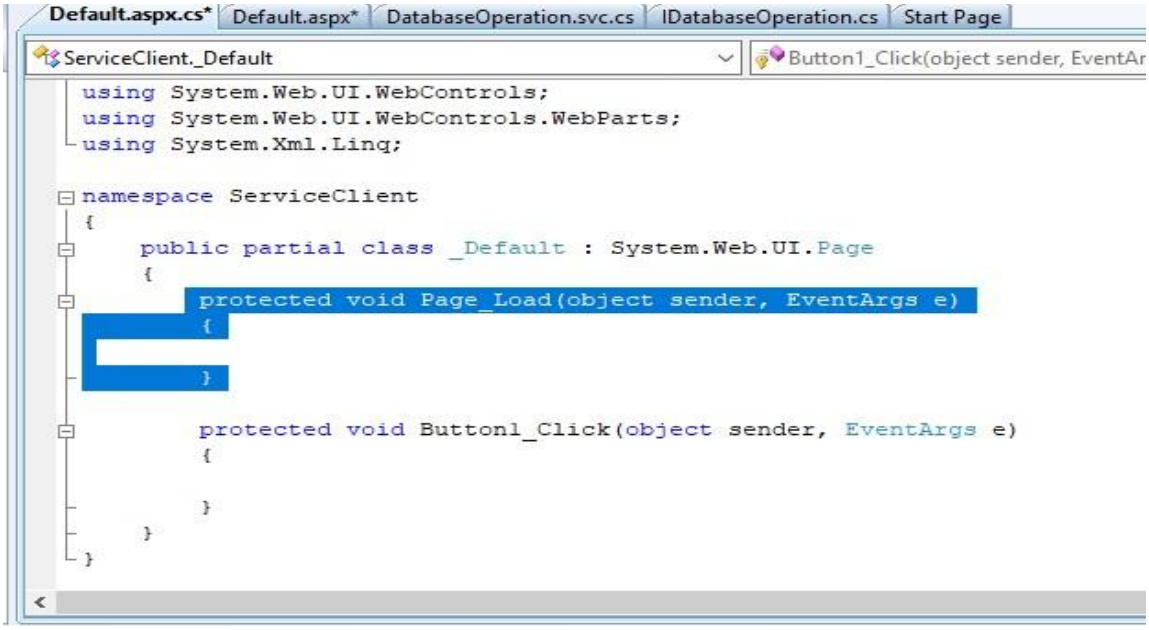
Textbox -> **TextBox1**

Textbox -> **TextBox2**
Button -> **Button1**
Textbox -> **TextBox3**
Button -> **Button2**
Label -> **Label1**
Label -> **Label2**

I’m not changing ID’s of any component. I will use as it is.

50. **double click on First button** to add event. So that, we can insert data into database by click on this.

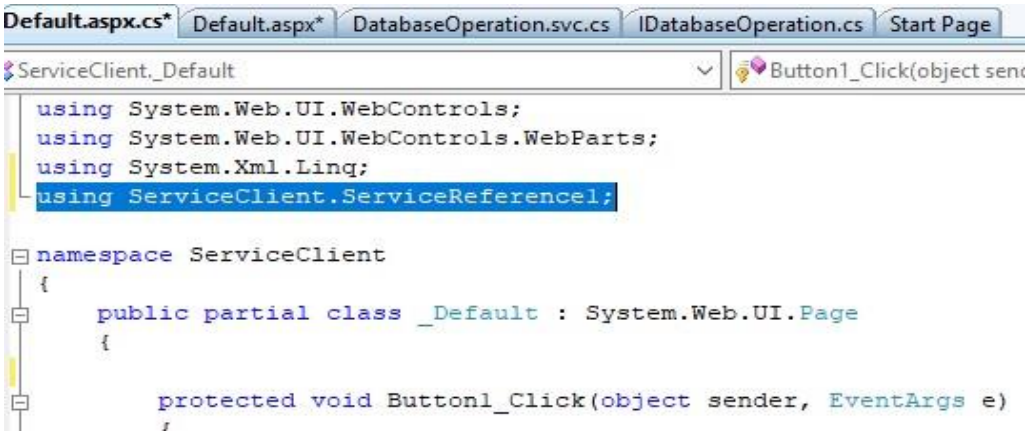
Double click on Insert Data button.



Delete the selected part. We do not need this.

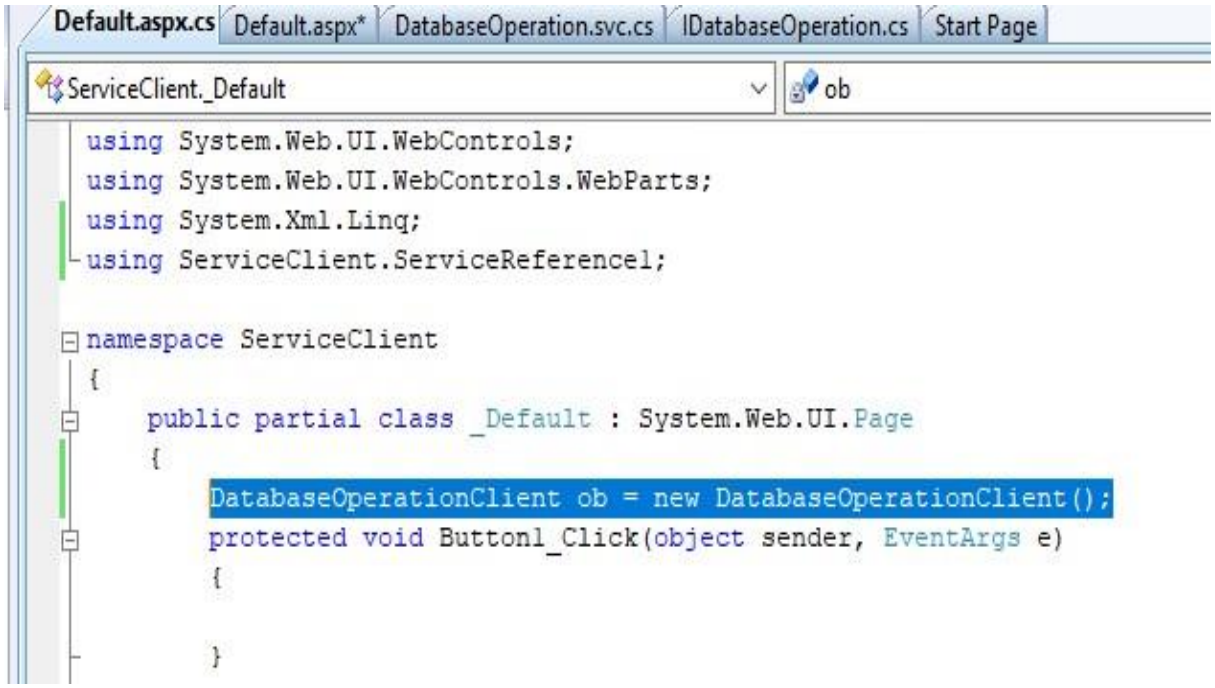
51. **Import the following package**.

```
using ServiceClient.ServiceReference1;
```



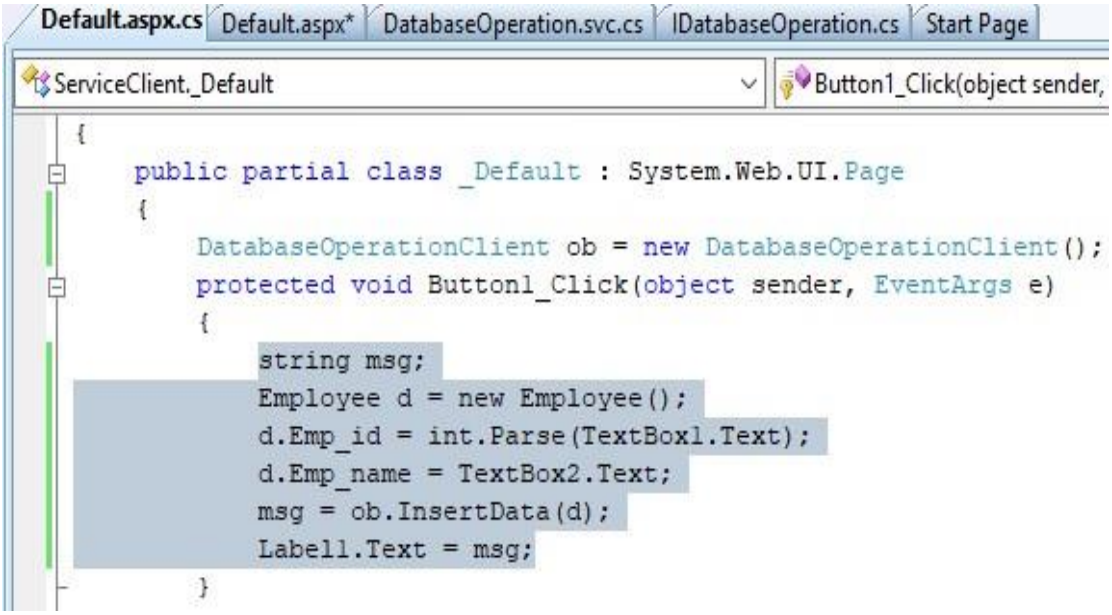
52. **Making the object of web service by adding the following line inside the class, but outside of method**.

```
DatabaseOperationClient ob = new
DatabaseOperationClient();
```

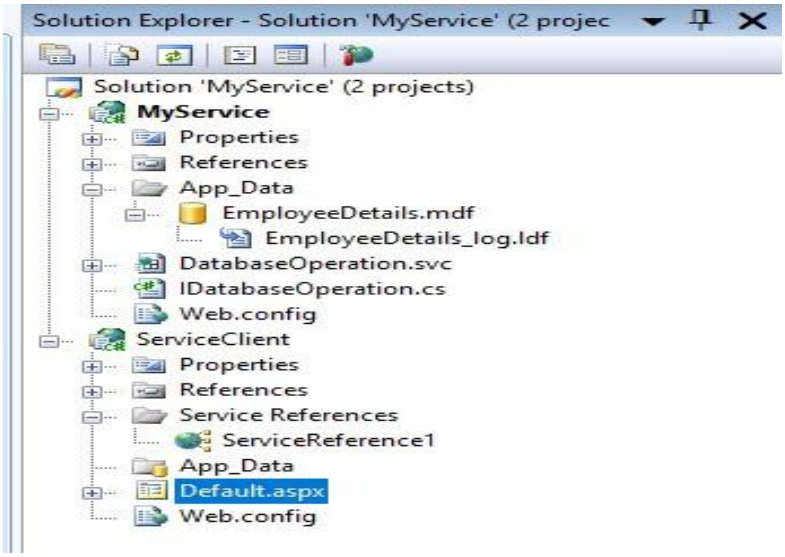


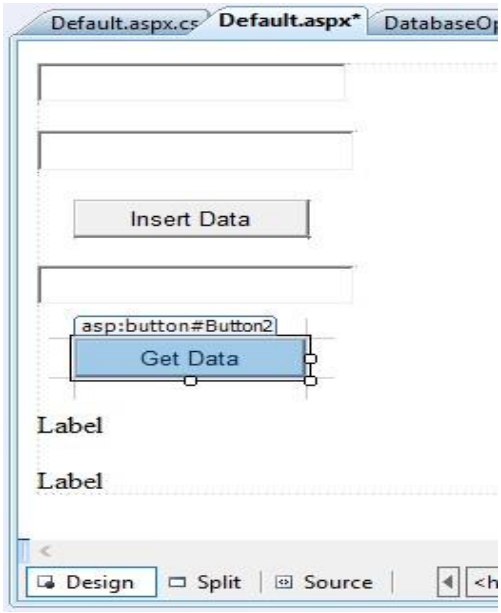
53. Now **add the following code in first button event method** and **press Ctrl+S**.

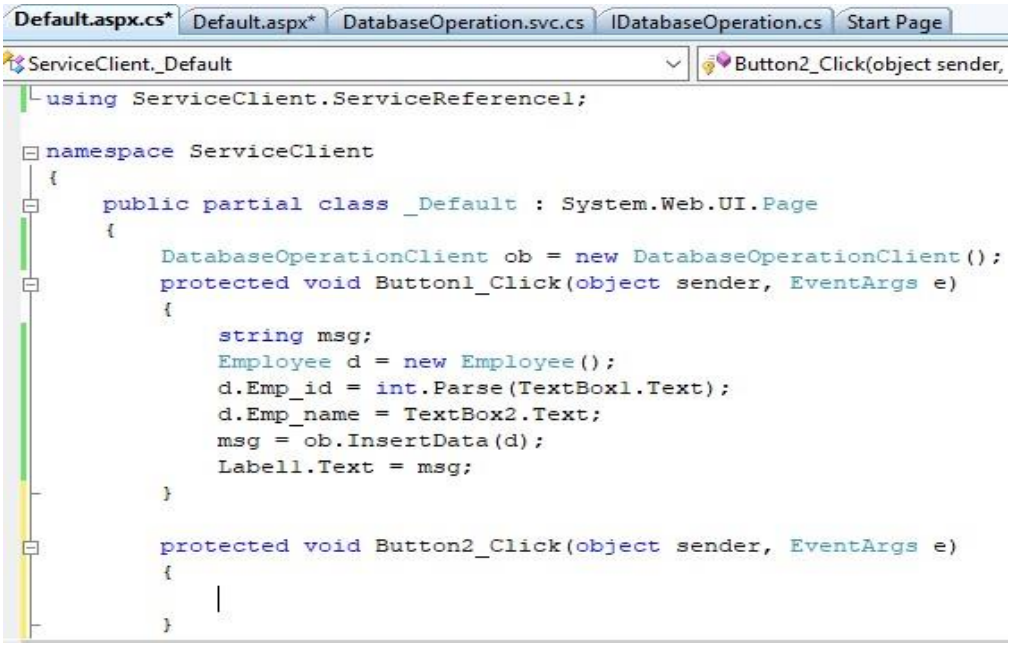
```
string msg;
Employee d = new Employee();
d.Emp_id = int.Parse(TextBox1.Text);
d.Emp_name = TextBox2.Text;
msg = ob.InsertData(d);
Label1.Text = msg;
```



54. **again Open Default.aspx** file **by double click on it**. **Go into Design mode** and **double click on Get Data button** so that we can add event for that also.

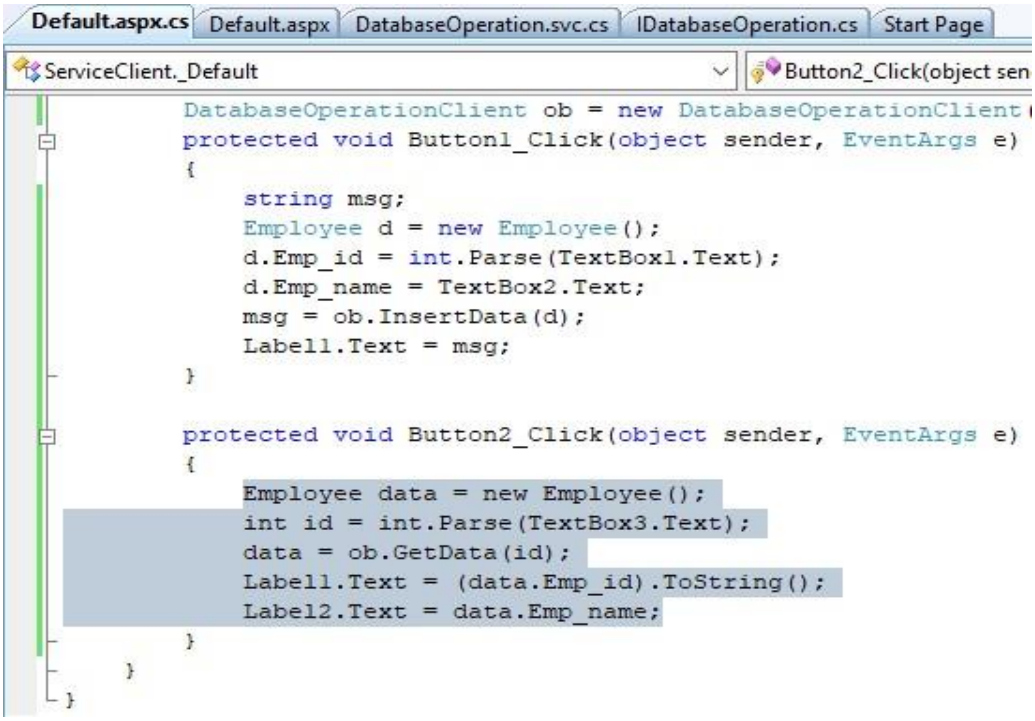

Solution Explorer - Solution 'MyService' (2 projec
Solution 'MyService' (2 projects)
MyService
Properties
References
App_Data
EmployeeDetails.mdf
EmployeeDetails_log.ldf
DatabaseOperation.svc
IDatabaseOperation.cs
Web.config
ServiceClient
Properties
References
Service References
ServiceReference1
App_Data
Default.aspx
Web.config


Default.aspx.cs
Default.aspx*
Insert Data
asp:button#Button2
Get Data
Label
Label
Design
Split
Source

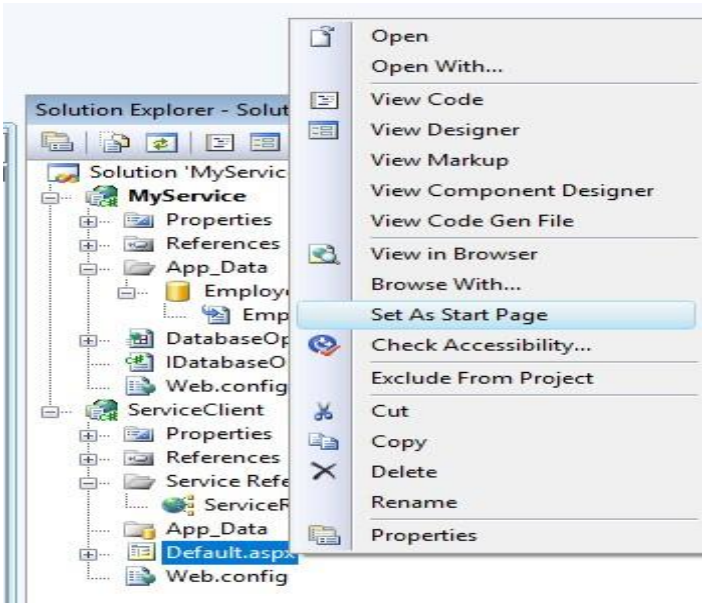


55. Now **add the following code**, **where the curser is indicating in above** pic to add event for second button. After that **press Ctrl+S**.

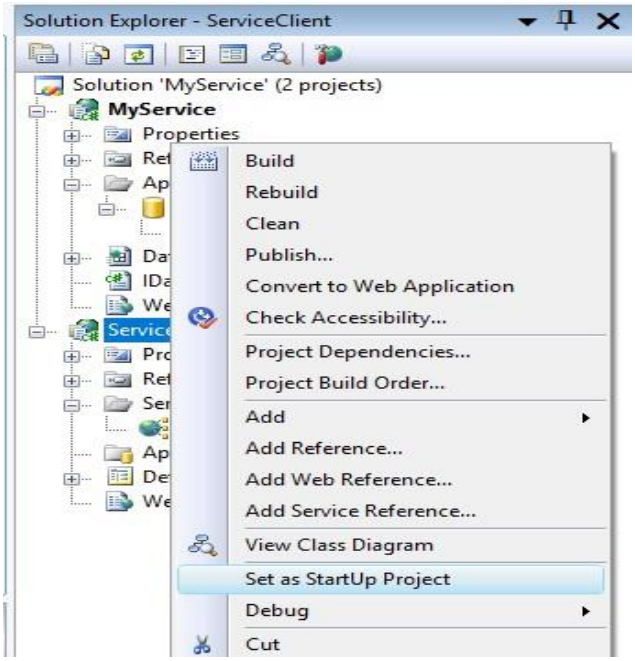
```
            Employee data = new Employee();
int id = int.Parse(TextBox3.Text);
data = ob.GetData(id);
            Label1.Text = (data.Emp_id).ToString();
            Label2.Text = data.Emp_name;
```



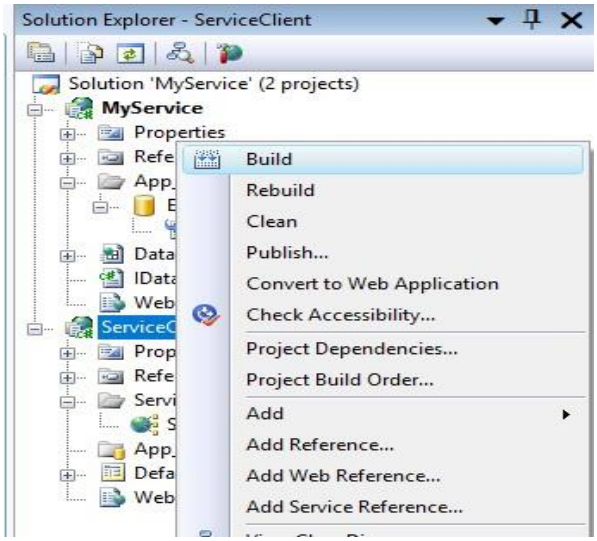
56. **right click on Default.aspx** file **of ServiceClient**, and **set it as start page**.



57. Now **right click on ServiceClient** and **set it as startup project**.

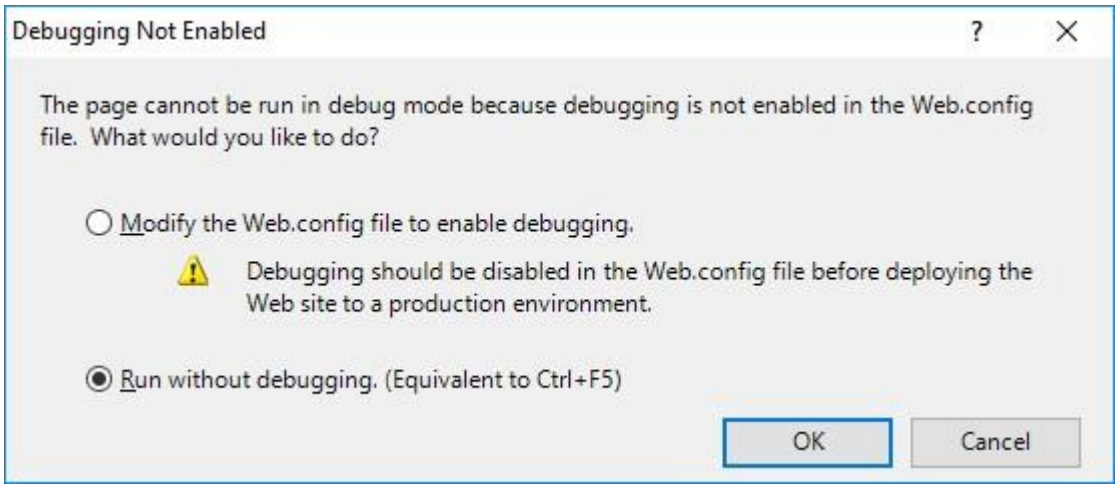


58. Now **Build the ServiceClient project**.

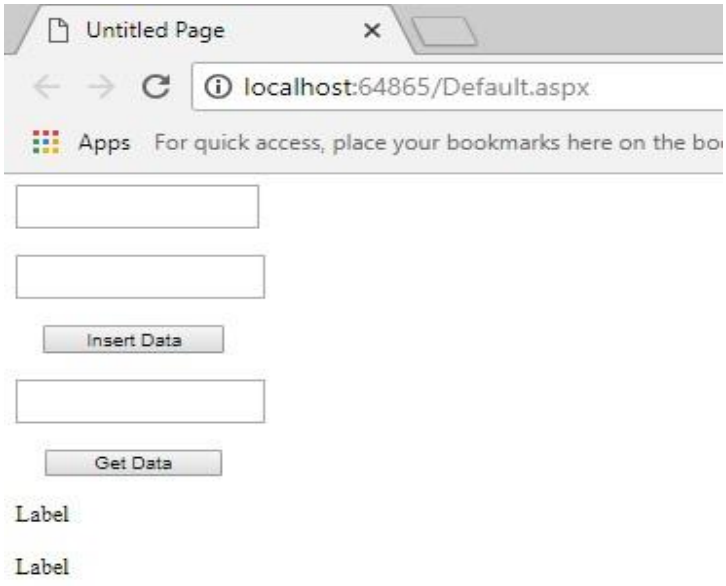


59. Now **run the ServiceClient project by pressing Run button** in toolbar.

60. Select second option and press OK.



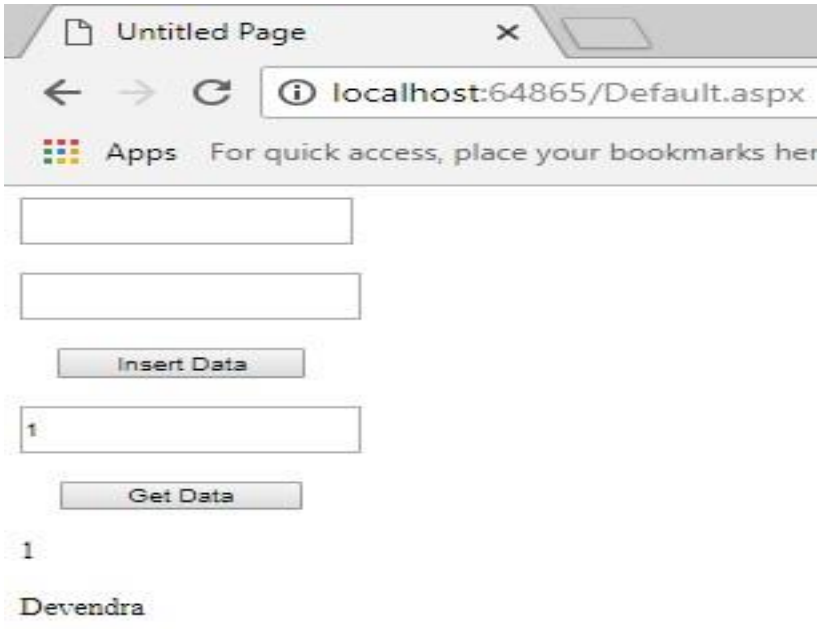
61. Following window will open in browser.



62. First we will do Get data Operation.

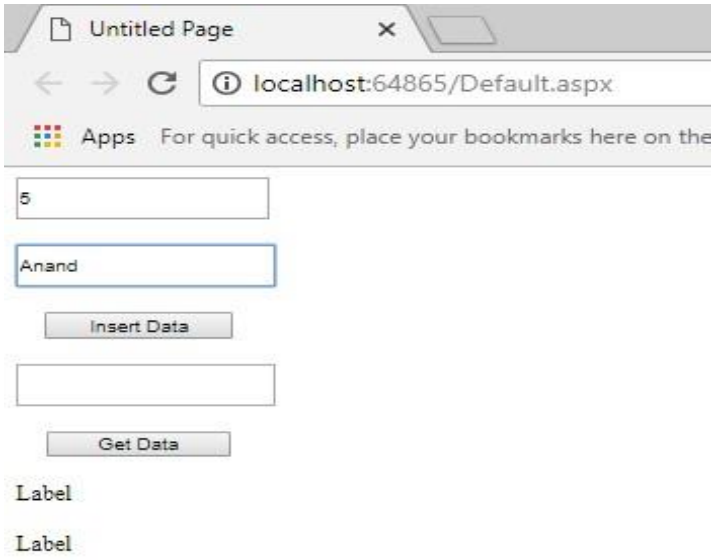
So I will use 3rd textbox to enter ID.

After **giving ID = 1** and **pressing Get Data button**.

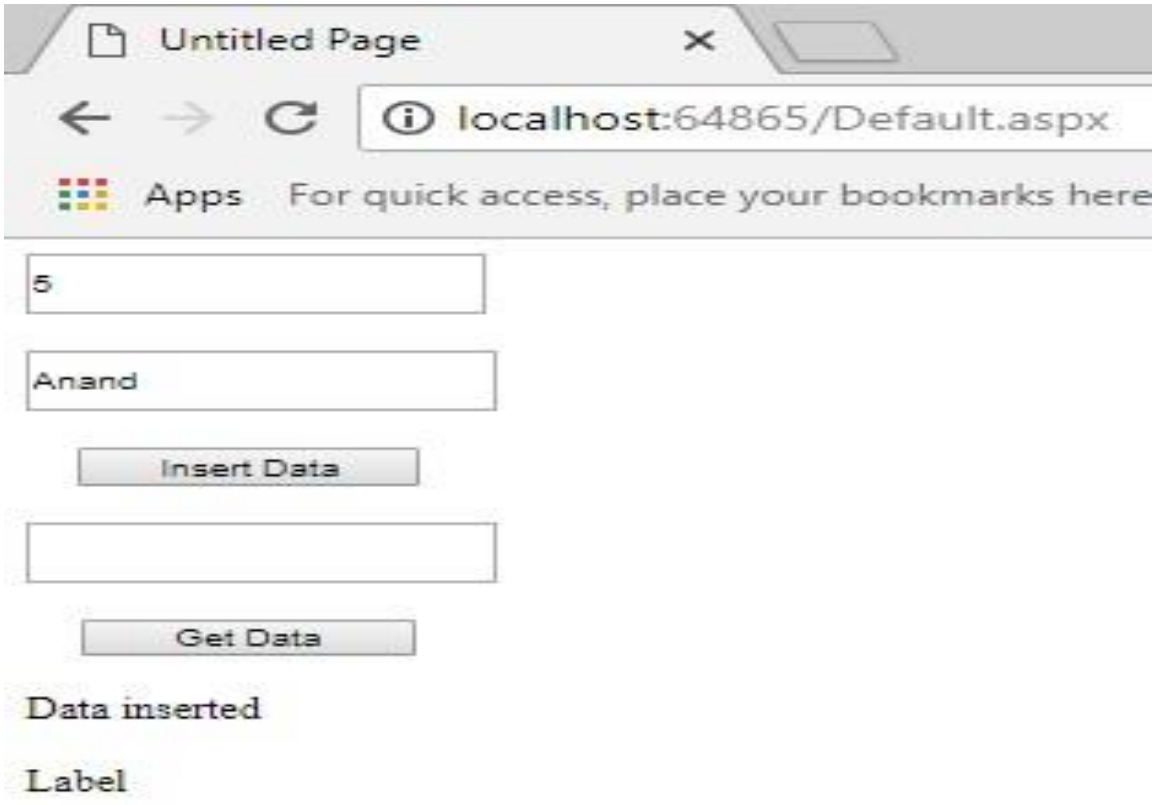


I got the detail of ID=1 that I have inserted record in step 20.

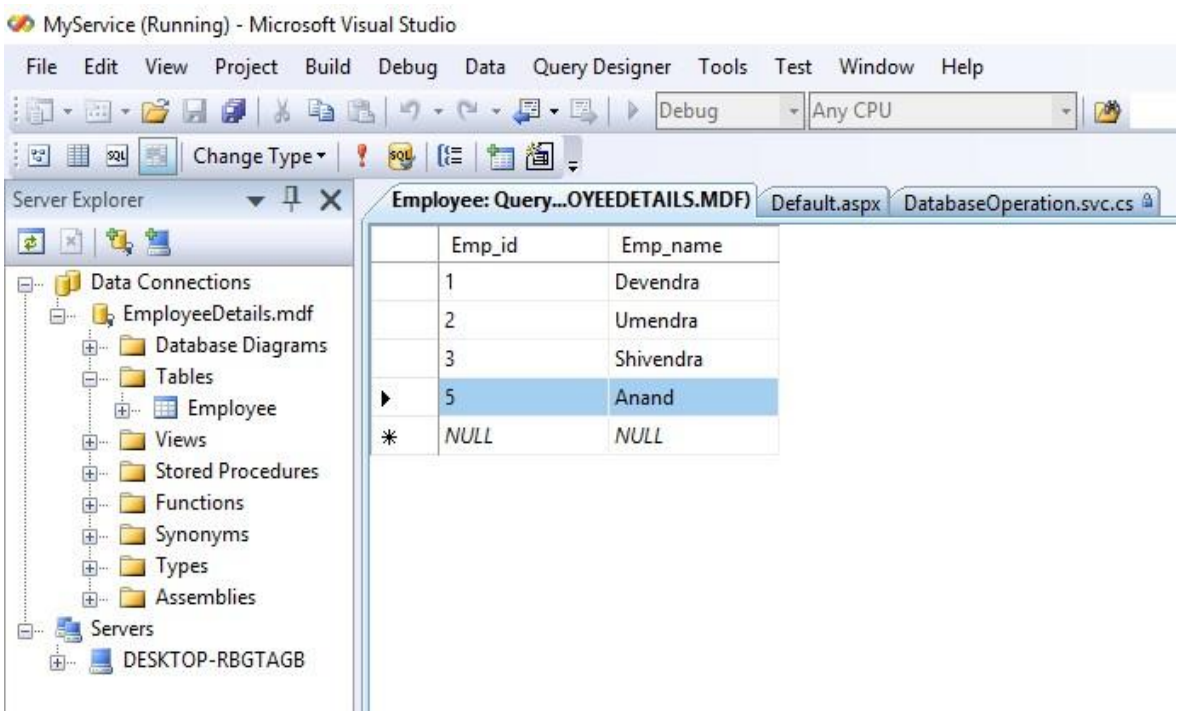
63. Now **again run the ServiceClient project for InsertData operation**.



After Insert Data button press.



As it is showing that data is inserted. So let's check it in database table.



If we will compare Employee table data from step 20 data, we can see that a new data Anand with ID=5 is added in Employee table.

Practical-8 (Without Database)

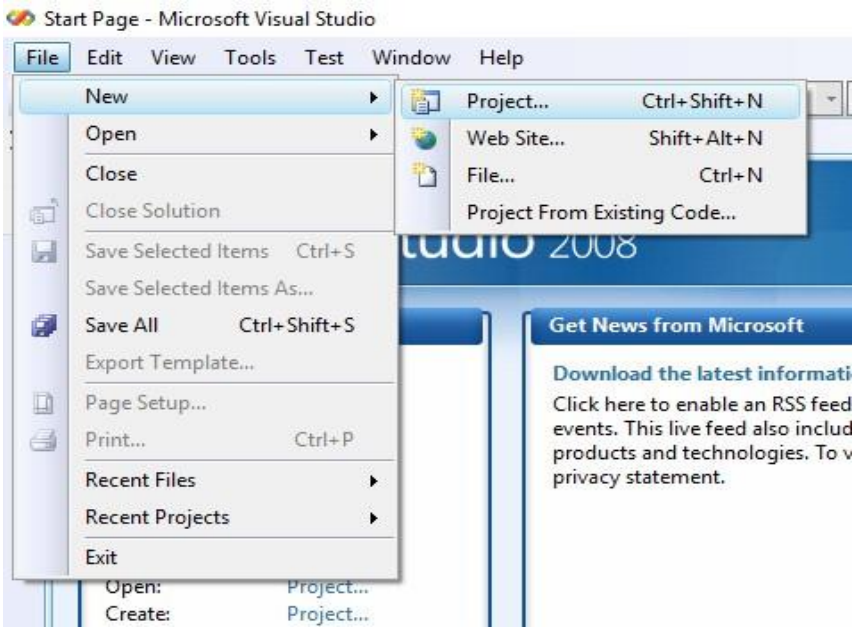
Aim: **Implement a typical service and a typical client using WCF.**

Requirements:

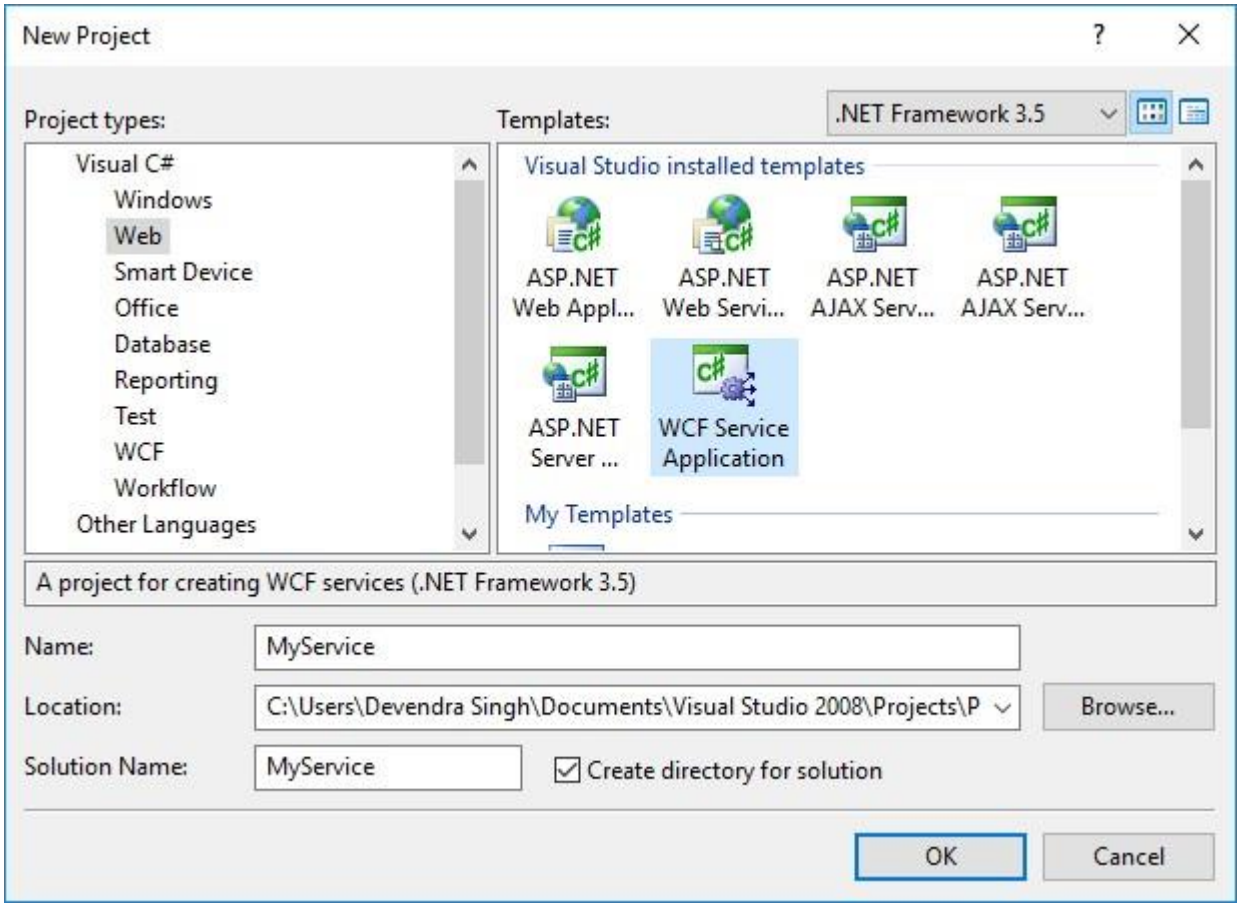
Visual Studio 2008 Professional.

Note: For practical 8, 9 & 10 Visual Studio is mandatory. Because we can implement WCF Service only on Visual Studio.

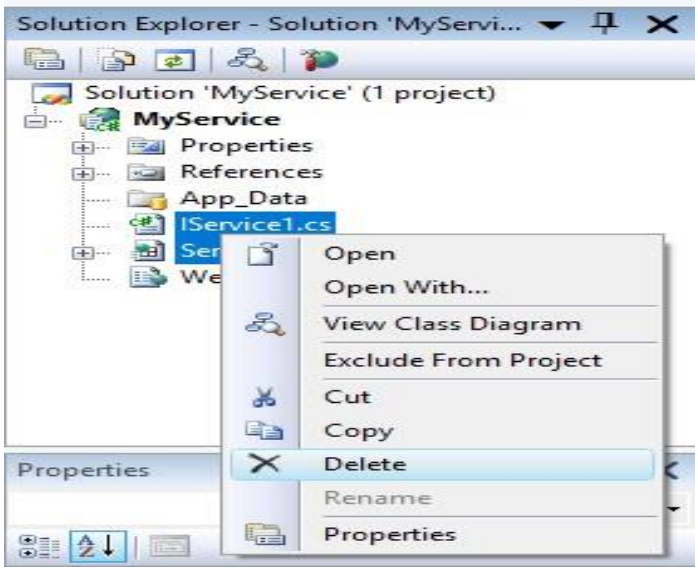
1. **Open Visual Studio and open Project.**



2. In **Project Types, select Web** and in **Templates select WCF Service Application**. Give it **name as MyService and click on OK button**.

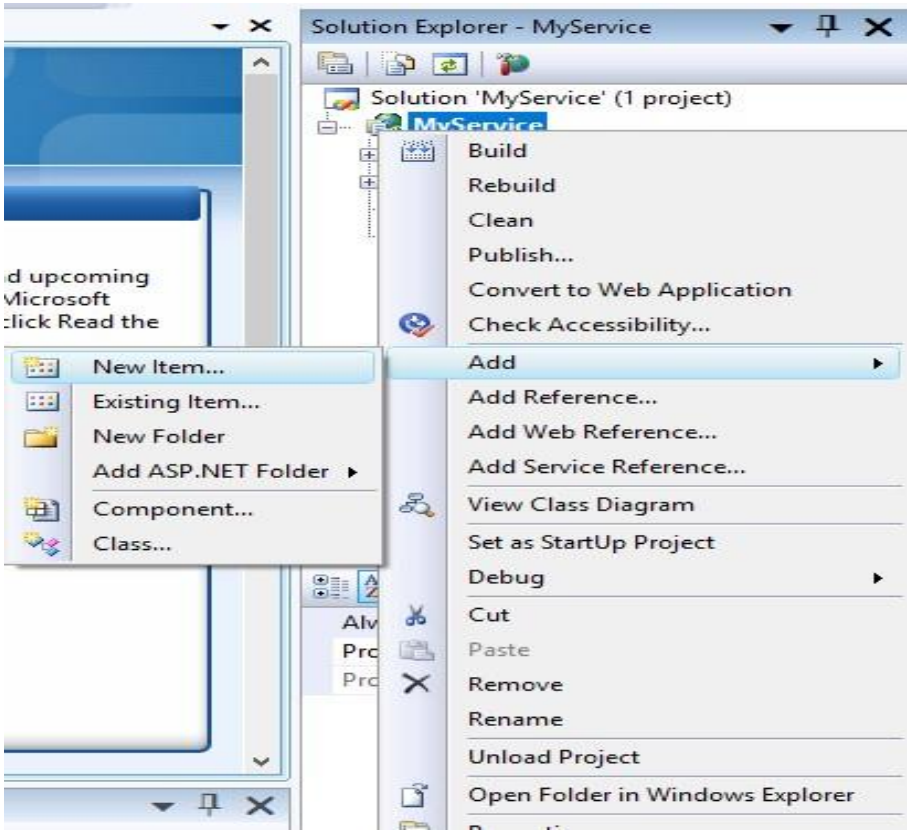


3. **Delete the selected two files** from Solution Explorer placed on right hand side. Actually we are going to delete these files, because this is default WCF Service file and we want to create our own WCF Web Service.

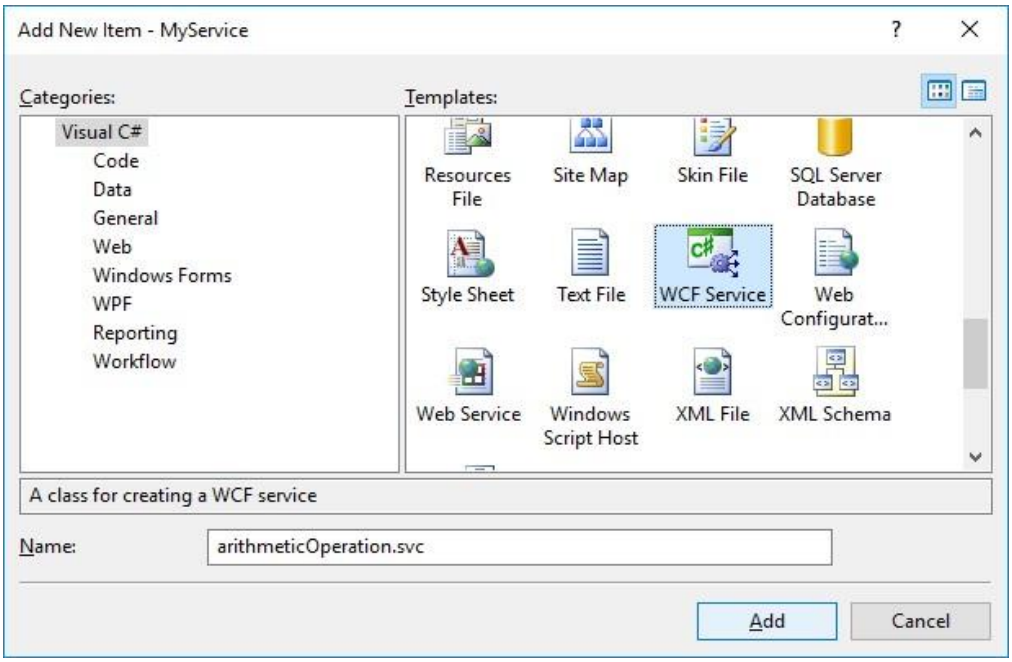


4. Now to create our own WCF web service.

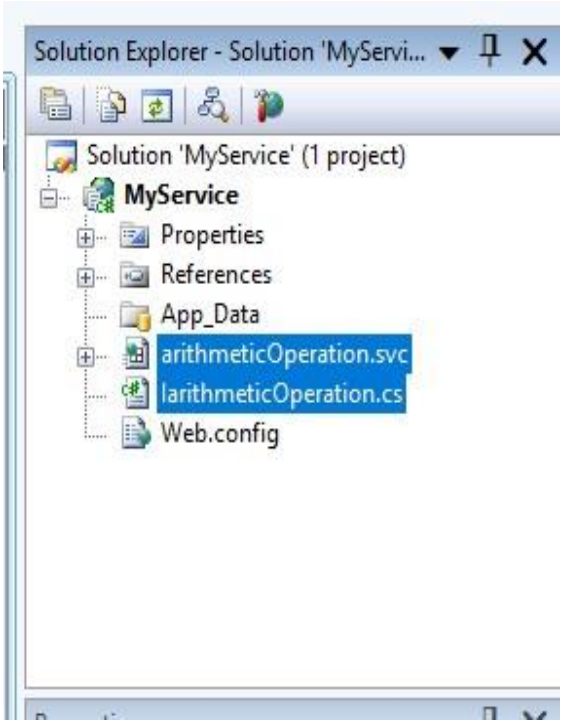
Right click on MyService -> Add -> New Item



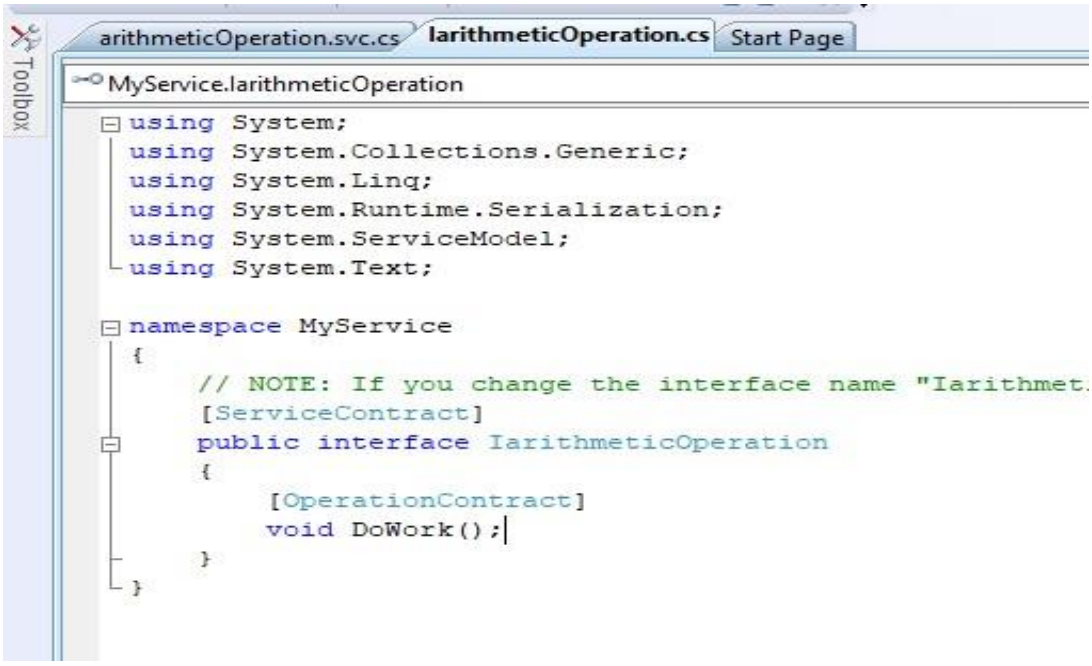
5. **Select WCF Service in Templates**. Give it **name as arithmeticOperation** and **click on Add** button.



6. Now **open** the **both** selected **files** by clicking on both **one by one** alternatively.

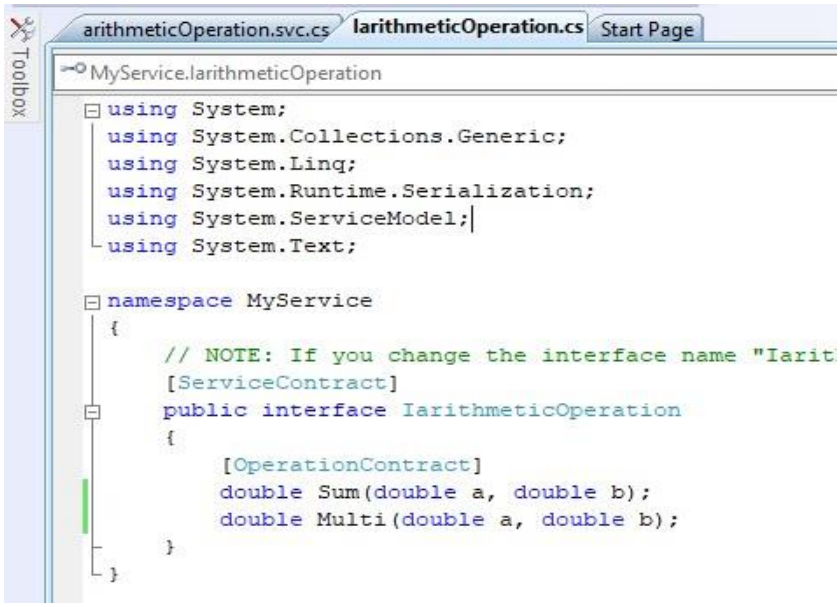


7. Now **open IarithmeticOperation.cs** file. It will look like below.



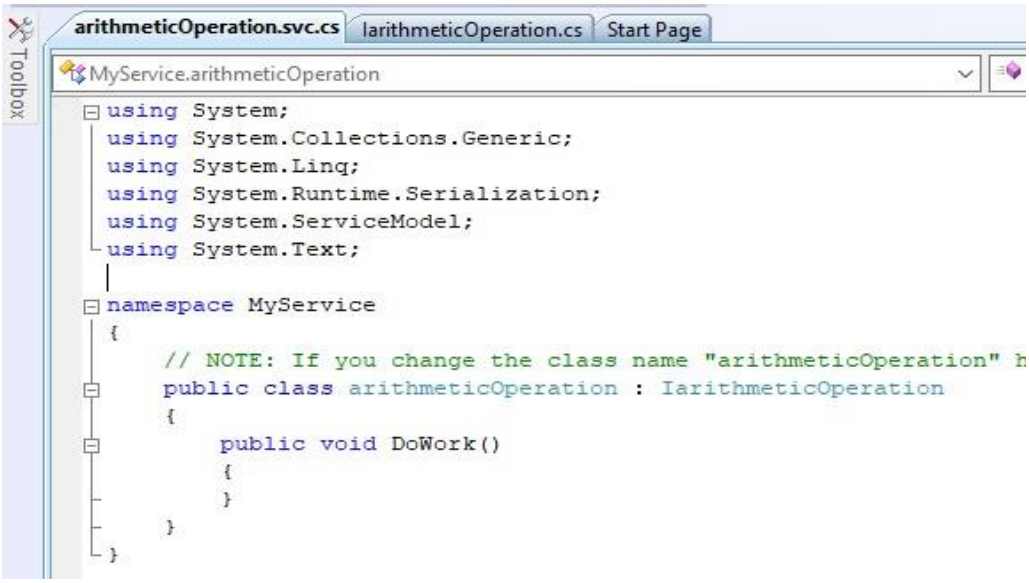
8. Now **replace the void DoWork()** interface **by following two new interfaces**. After that **press Ctrl+S** to save the changes.

```
        double Sum(double a, double b);
double Multi(double a, double b);
```



You can add as many more interfaces as many WCF service methods you want. After that you will use these interfaces in arithmeticOperation.svc.cs file to define the Service methods. In this WCF service I'm creating only two methods that can be used by client.

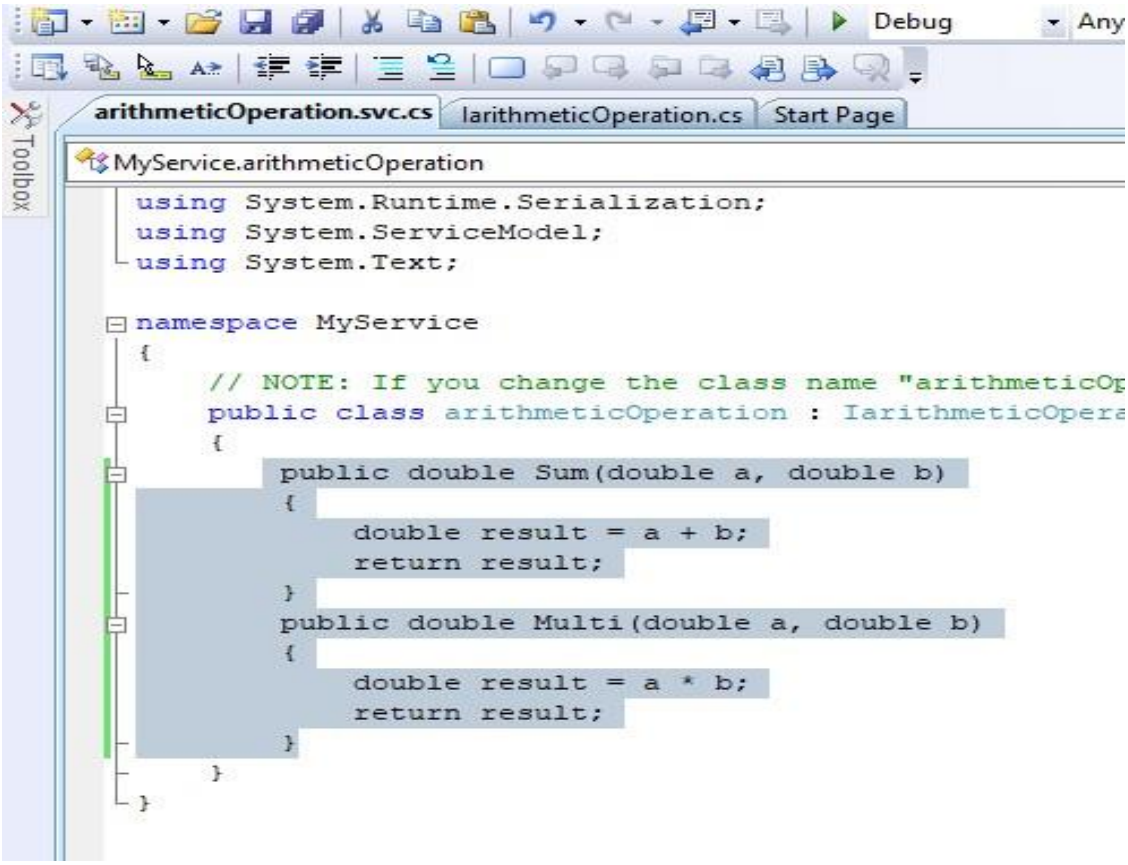
9. Now **open arithmeticOperation.svc.cs** page. It will look like below.



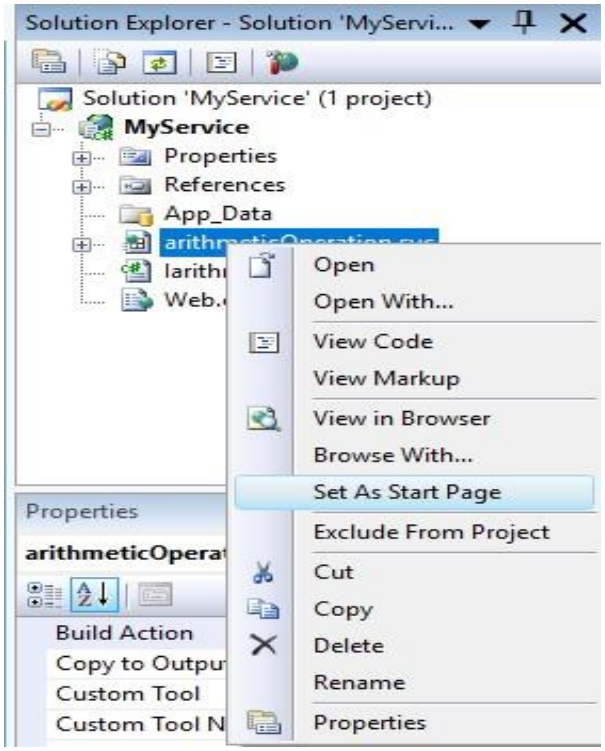
10. As we can see it contains the DoWork() method already, that interface we have deleted in previous file and we replaced this by two new interfaces. So we will

use those two interfaces as method in this file. **After add following code press Ctrl+S to save the changes**.

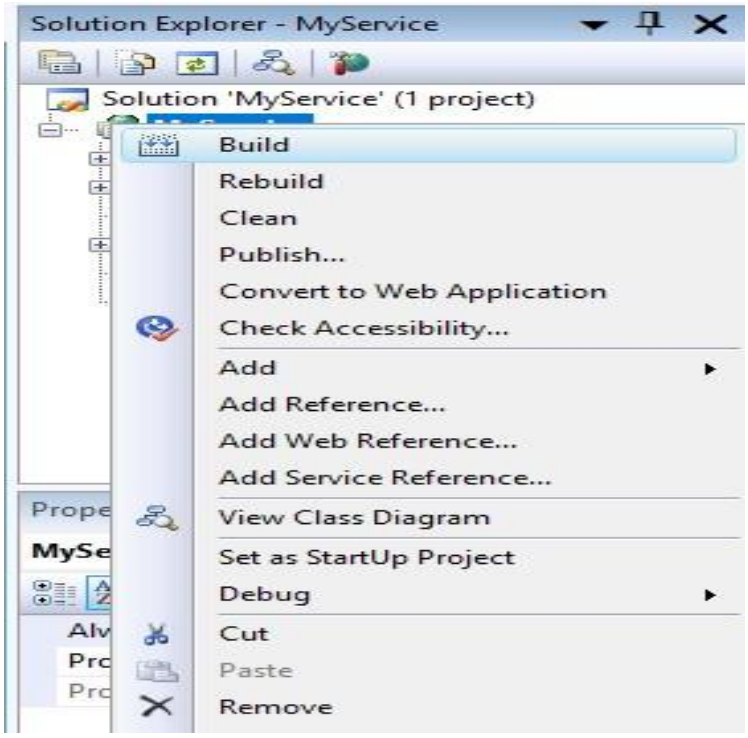
```
    public double Sum(double a, double b)
        {
            double result = a + b;
return result;
        }
      public double Multi(double a, double b)
        {
            double result = a * b;
return result;
        }
```



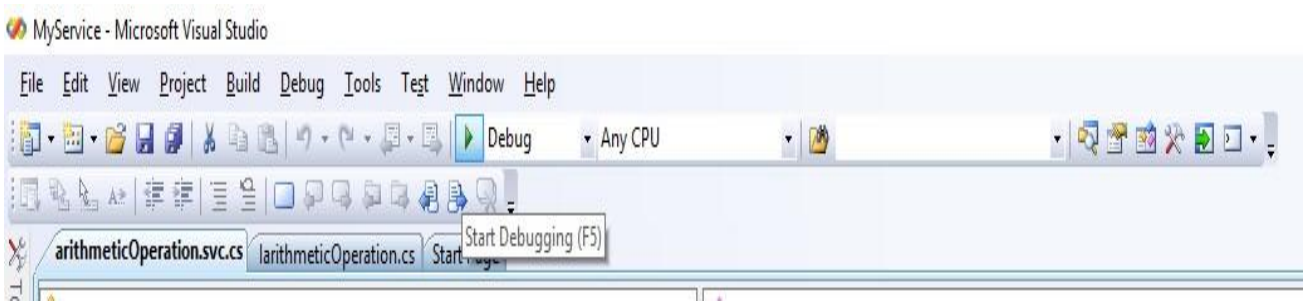
11. Now **right click on arithmeticOperation.svc** file name **in Solution Explorer** and **click on Set As Start Page**.



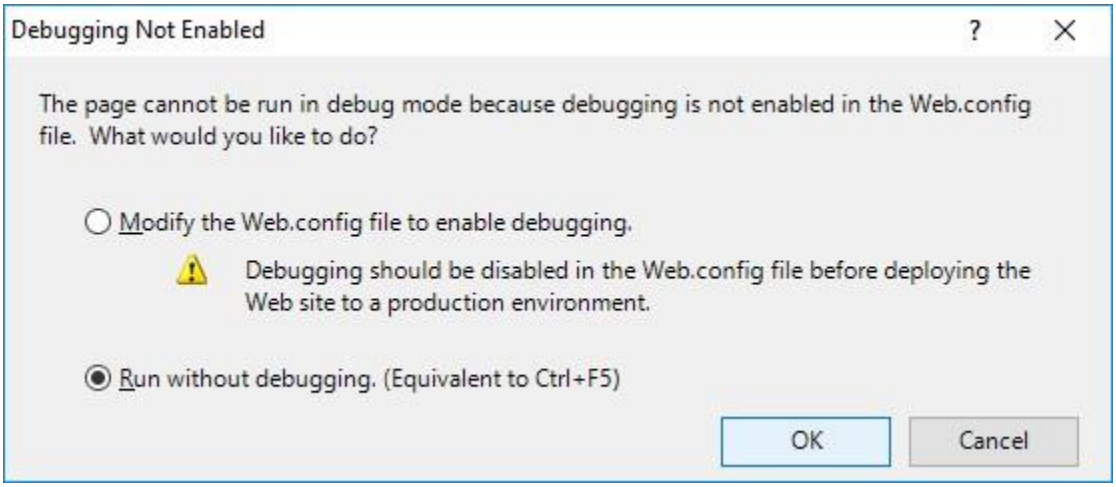
12. Now **right click on MyService** in Solution Explorer and **select Build** to build the project.



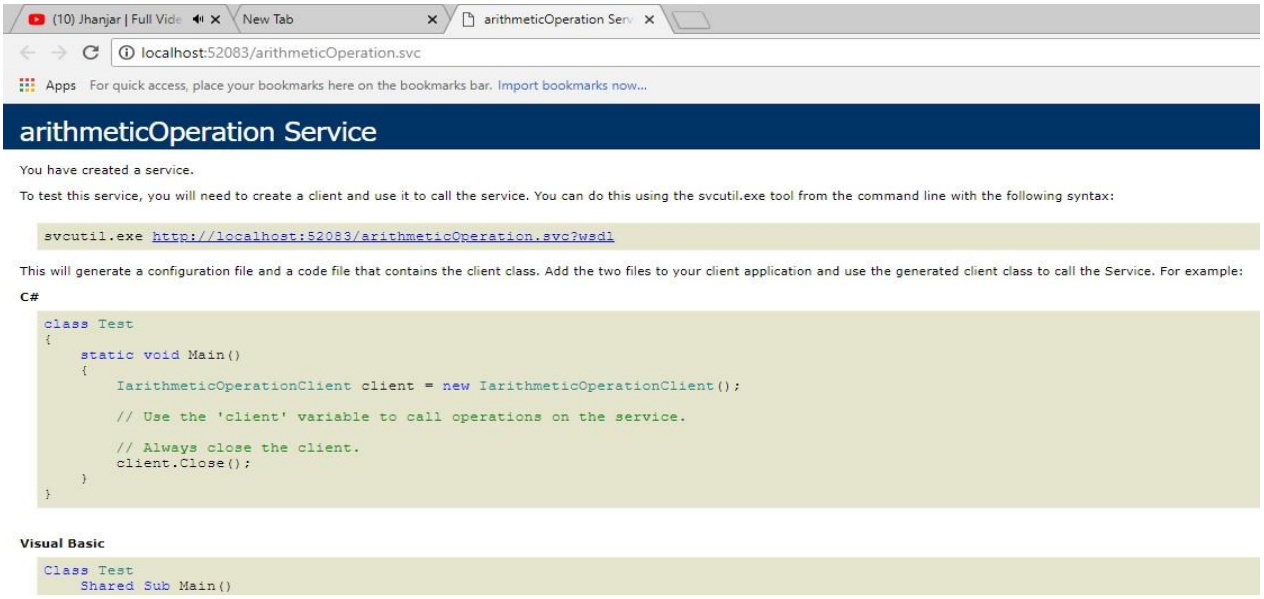
13. Now **click on run button** to run the project.



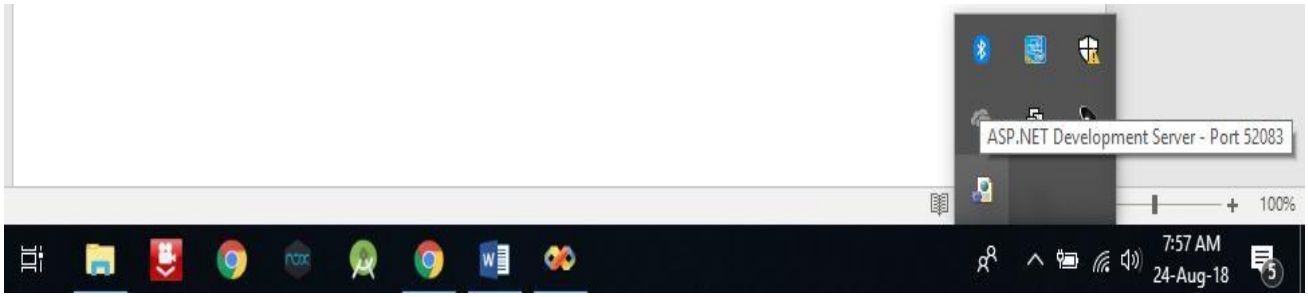
14. If any window appears like below then **select Run without debugging** and **click on OK** button.



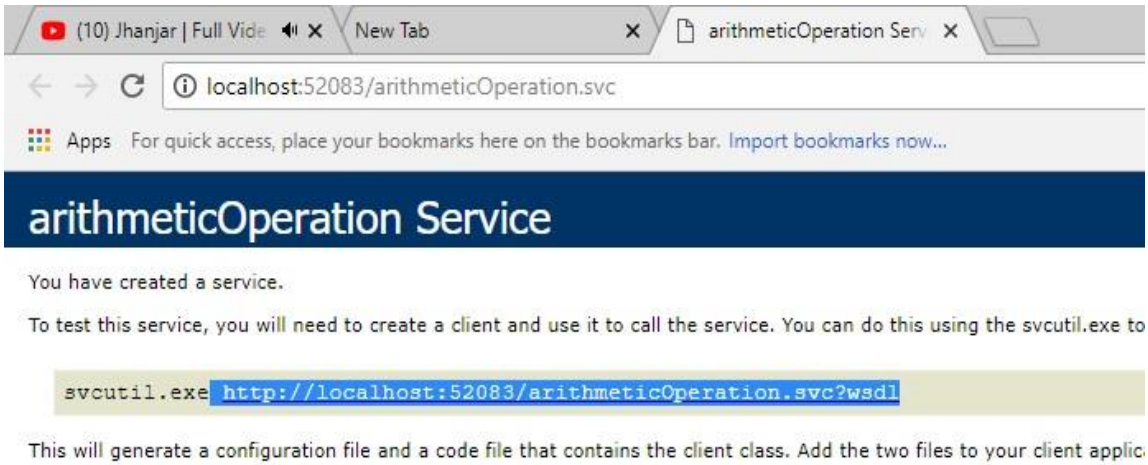
15. A new window will open in browser like below.



16. **So we have successfully created a WCF Service** and it is **running on inbuilt server of visual studio**. You can see it in taskbar.

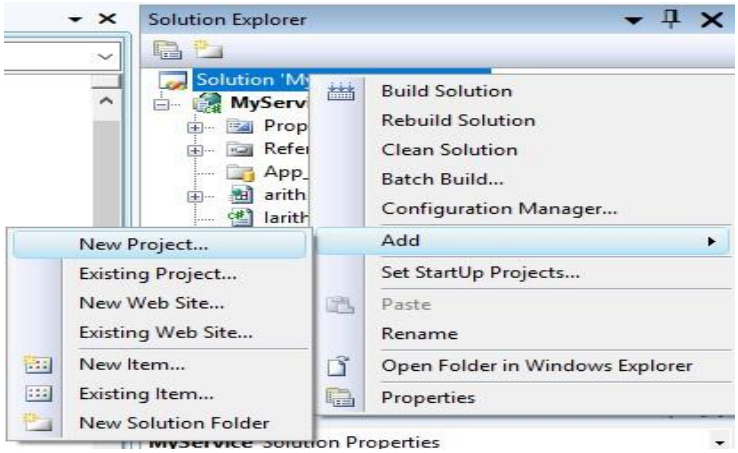


17. Now **copy the selected link to consume this service on client side**.

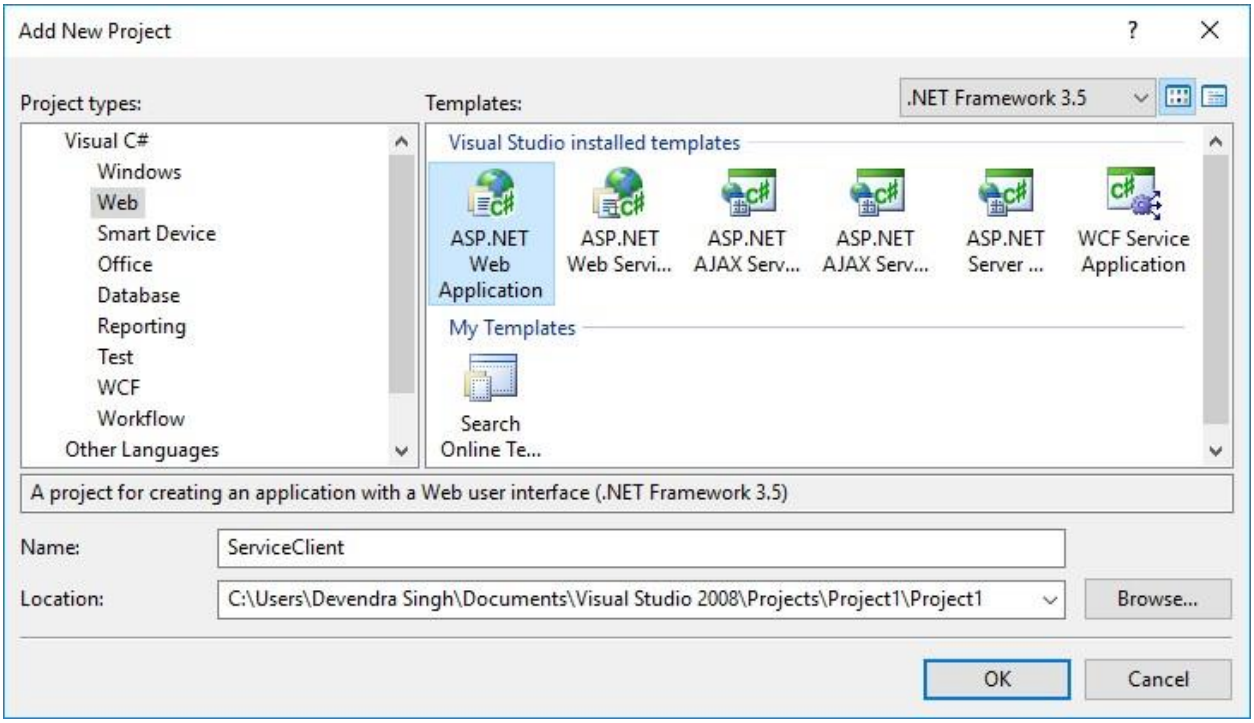


18. Now take care, you can close the browser. But don't close the Solution Explorer or Visual Studio, otherwise inbuilt server will stop and you will get error during consuming this service. Even, you have to create the client within the same Solution Explorer. To solve this problem we can host this service on IIS. But it will take more steps and for our practical we don't need this.

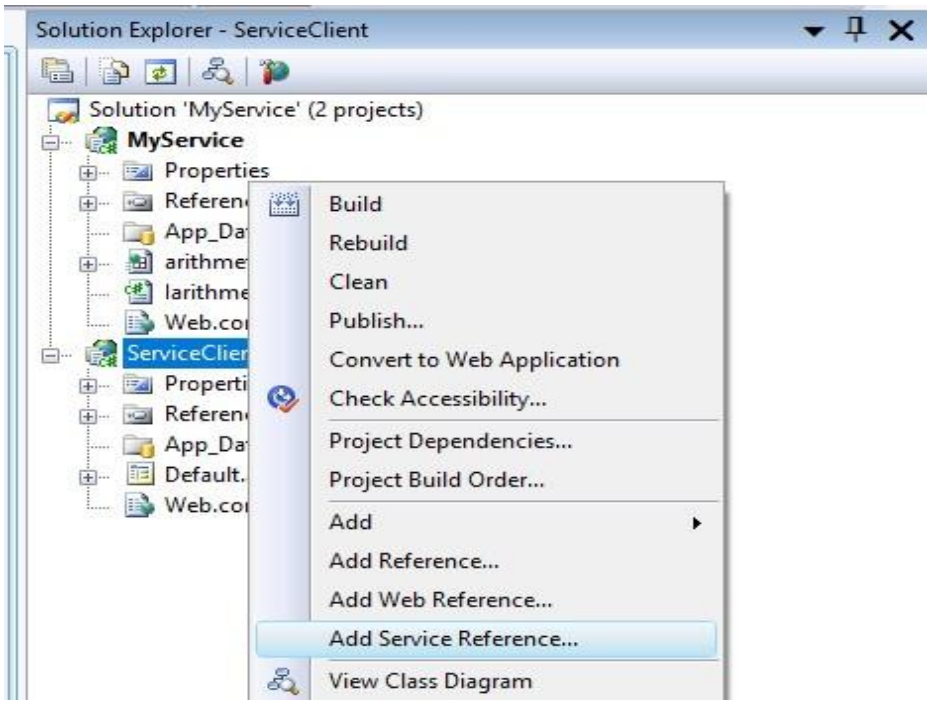
19. Now **right click on solution explorer** and **add a new project** to create client.



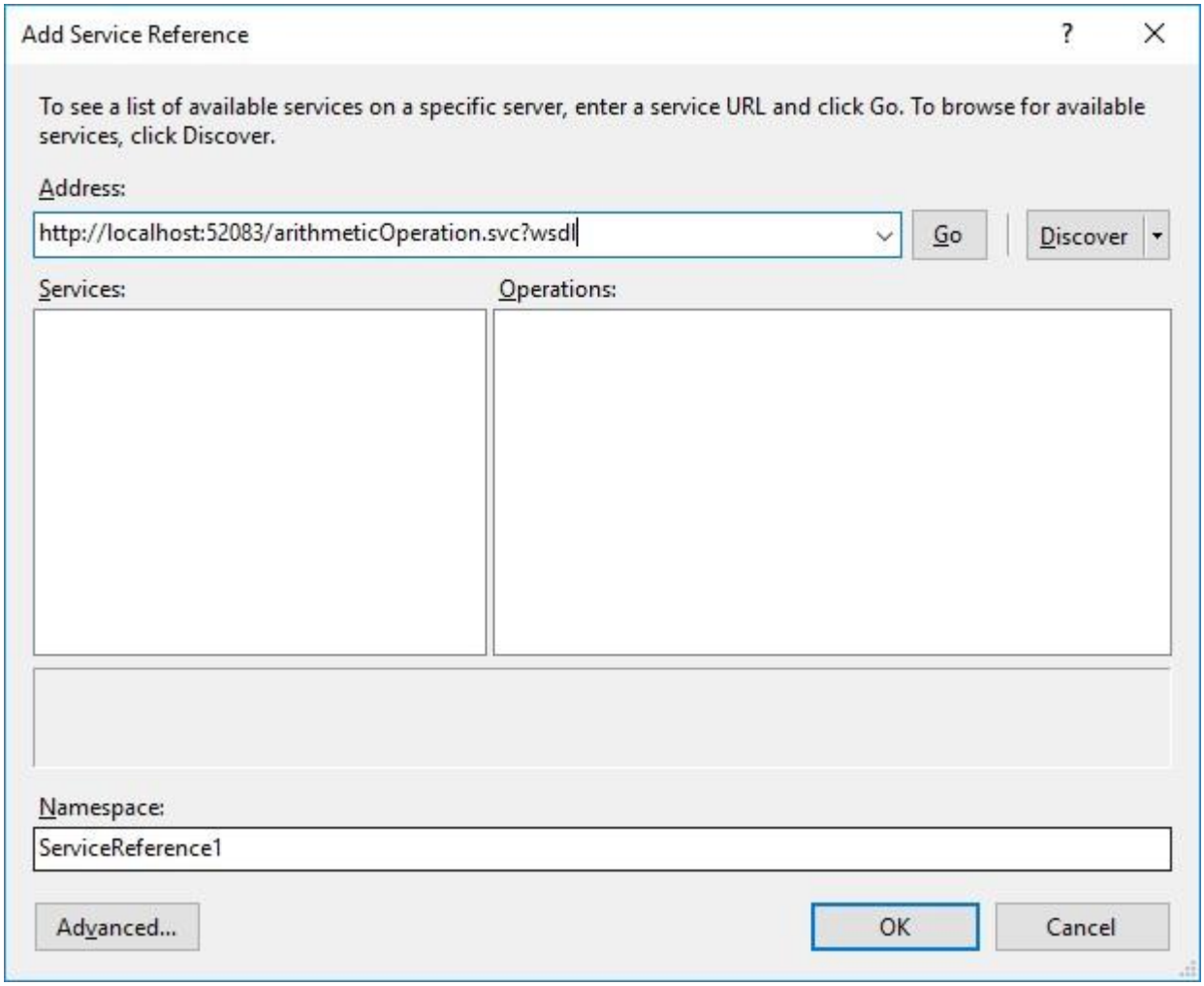
20. **In Project Type select Web** and **in Templates select ASP.Net Web Application**. Give it **name as ServiceClient** and then **click on OK** button.



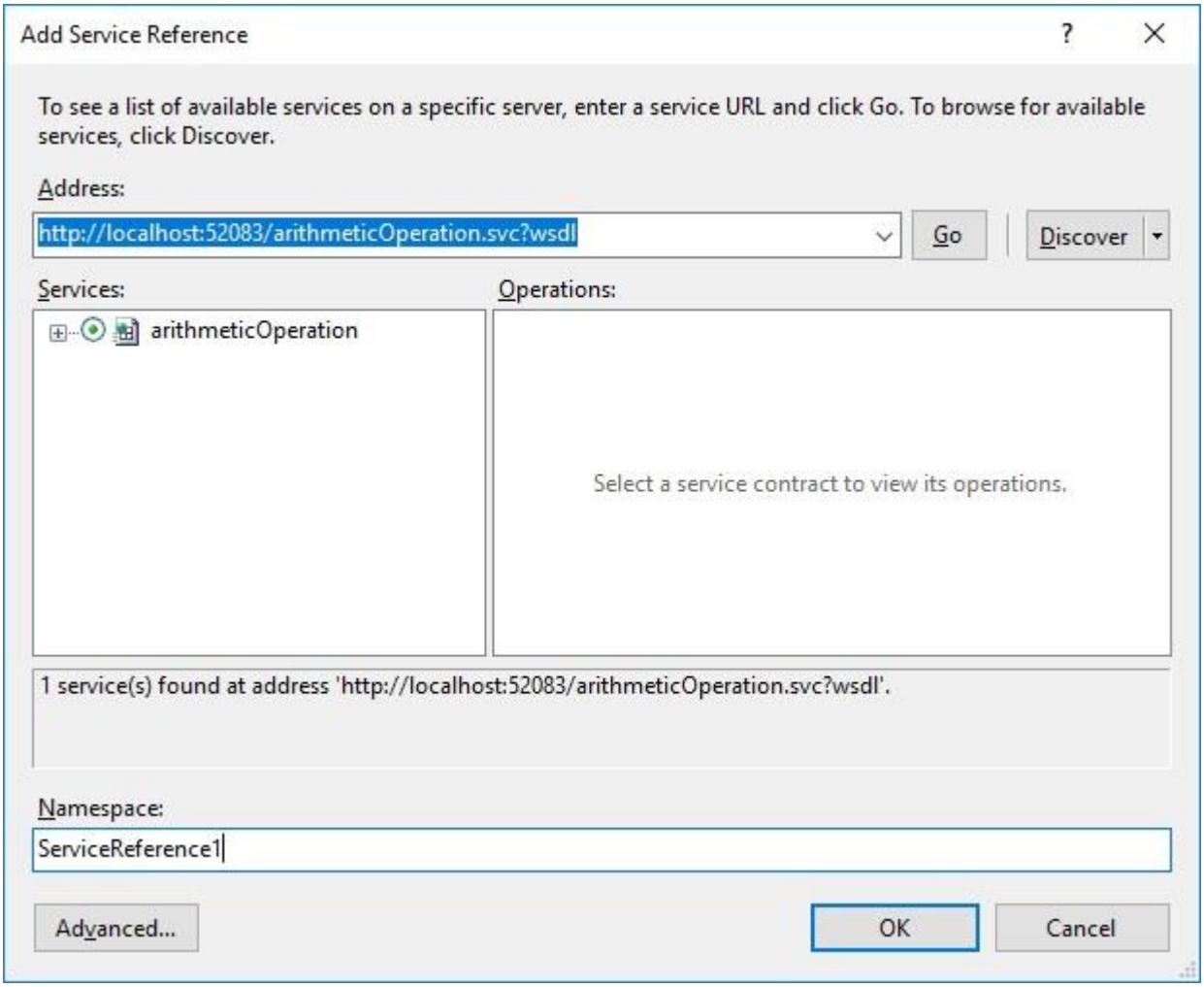
21. **Right click on Service ServiceClient** in Solution Explorer and **select Add Service Reference**.



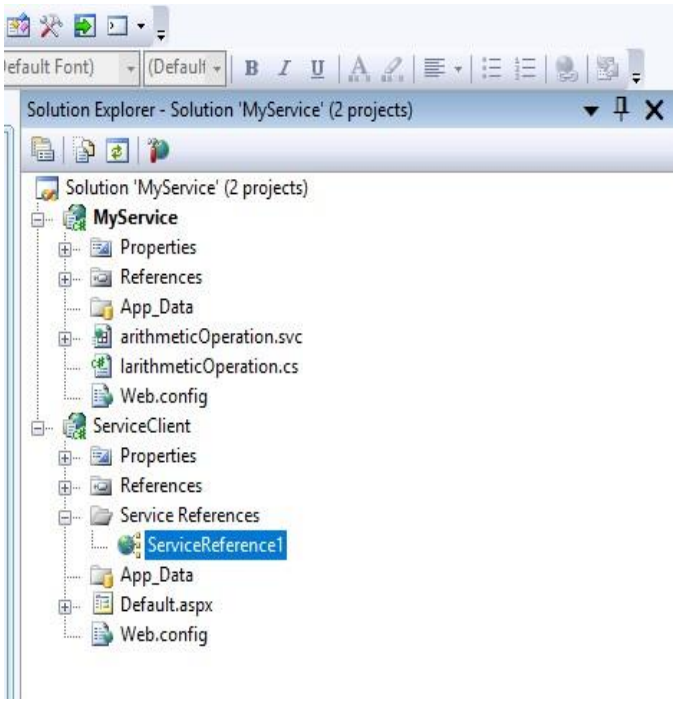
22. **Paste the copied link** into Address and **click on Go button**.



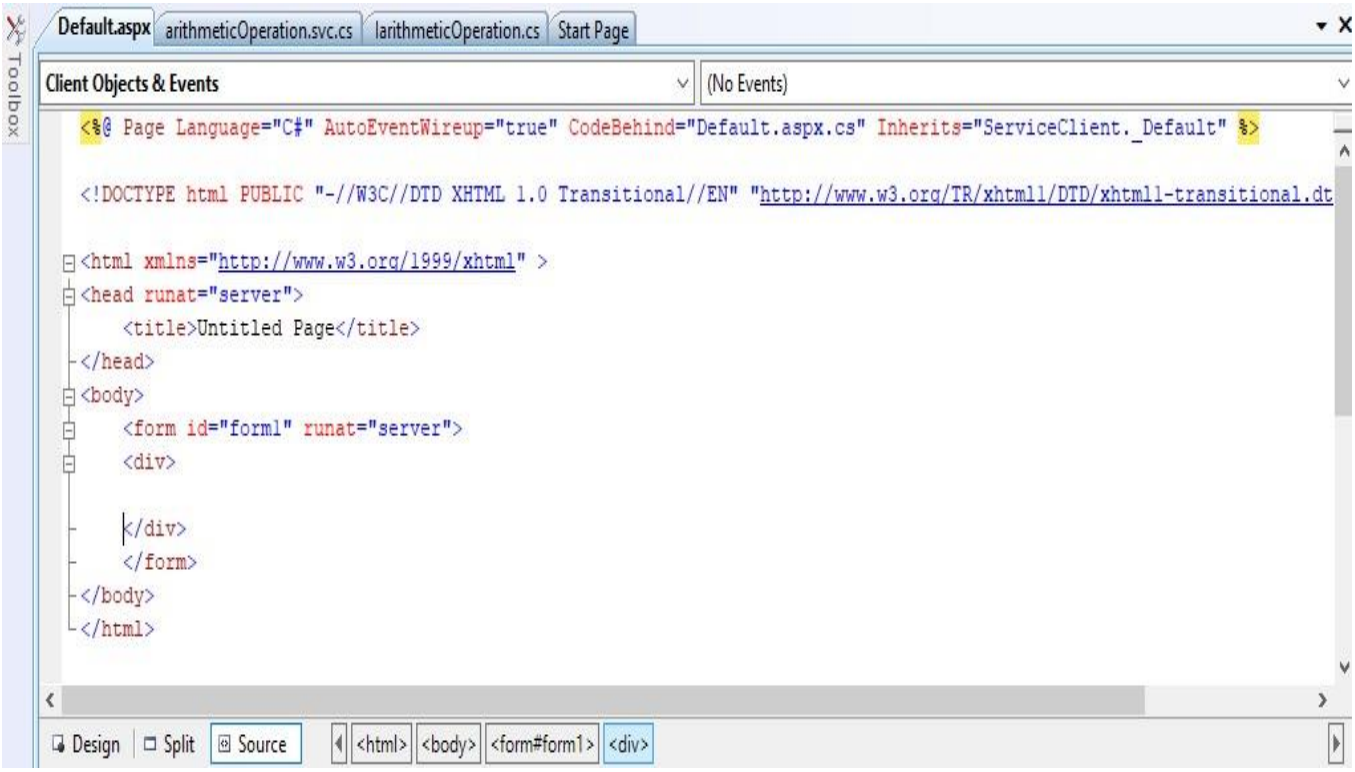
23. As you can see arithmeticOperation Service is fetched. Now I'm leaving **Namespace as it is i.e. ServiceRefference1**. Actually this namespace will be used to call the Service methods. If you will change it then you have to use the according namespace to call the service methods. **Click on OK** button.



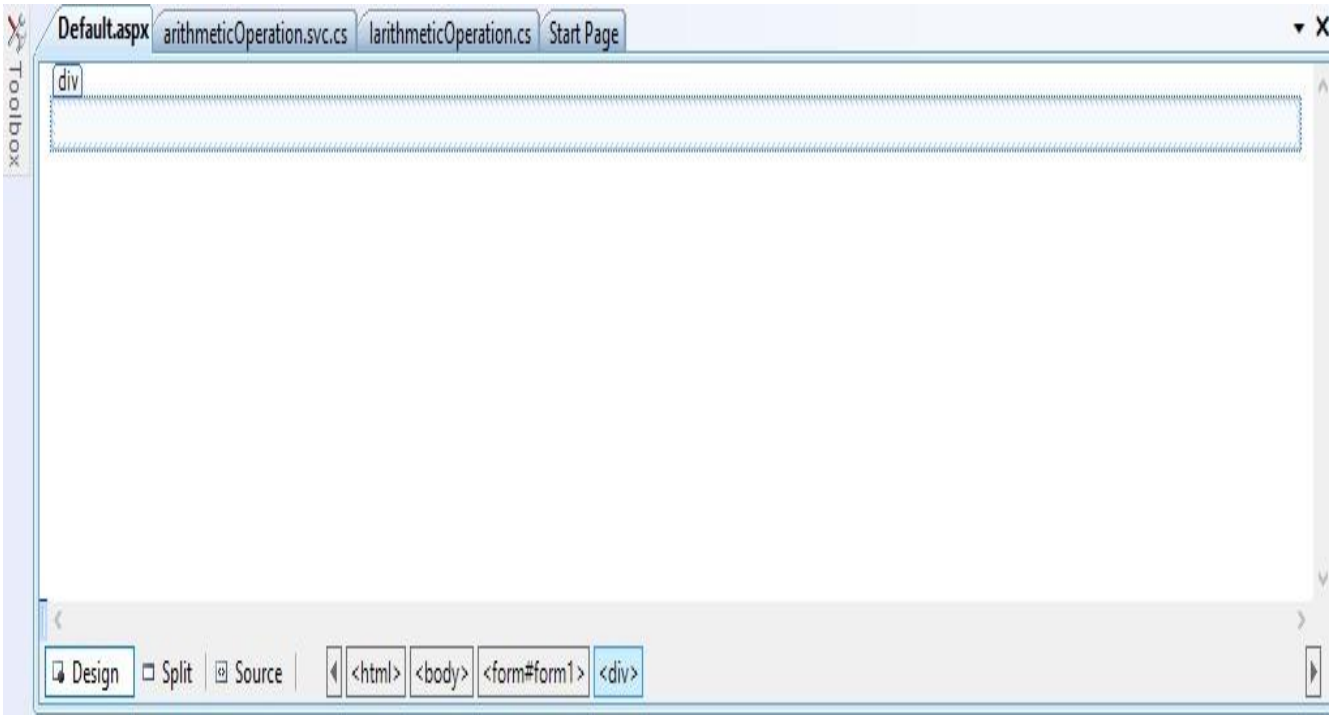
24. As you can see Service Refference is added with Namespace in Solution Explorer.



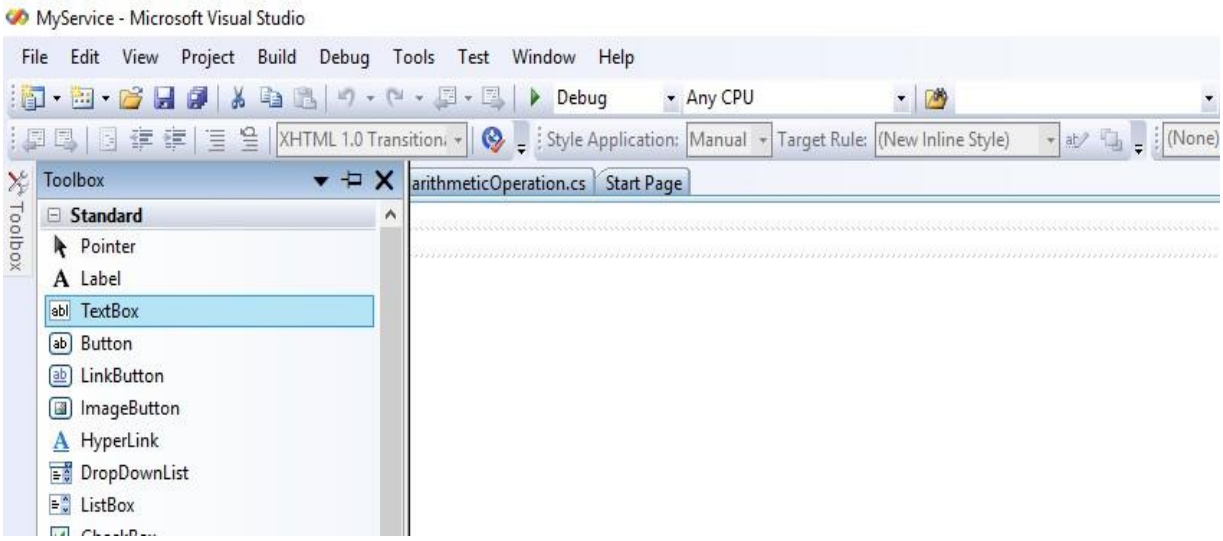
25. Default.aspx page of ServiceClient will appear by default in Source mode. Otherwise you can **open it from solution explorer**.



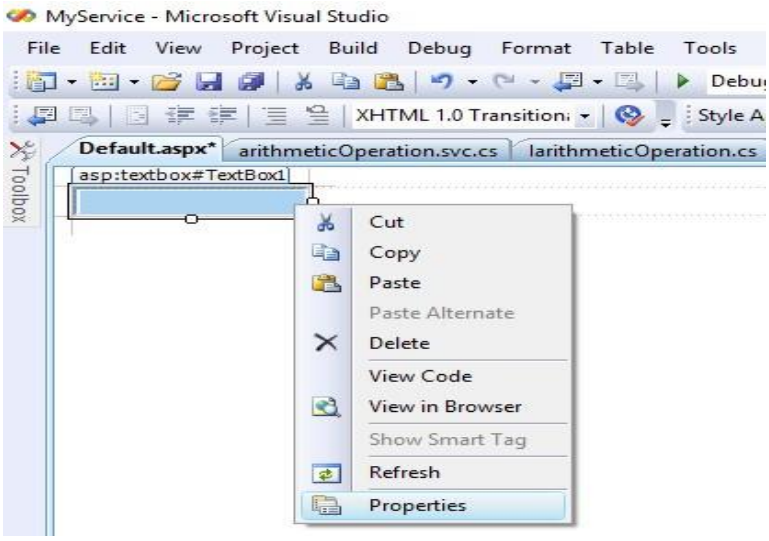
26. Now go to design mode by **click on Design**.



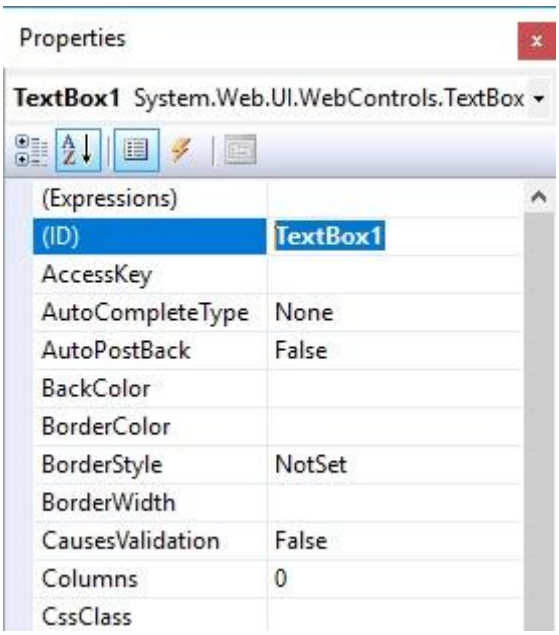
27. Now **click on Toolbox** on the top-left in above pic to add components. To add a textbox **select TextBox** from Toolbox and **drag it into the screen** that is appearing as blank.



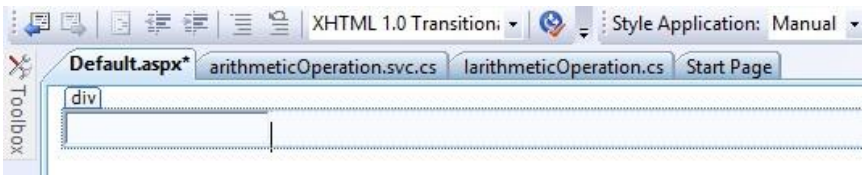
28. As you can see a TextBox is added to page. **Right click on it** and **select Properties to set it's ID**.

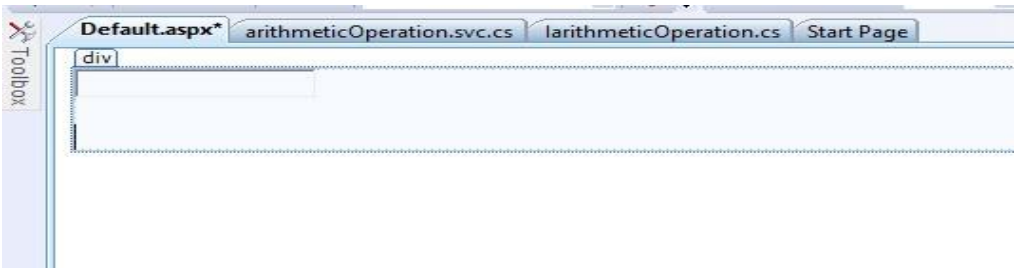


29. Property list of selected TextBox will open and you can see its ID is TextBox1. I'm going to leave it as it is. So its ID is TextBox1. You can change its ID, But accordingly it will change in C# program, where we will fetch the values of textboxes using its ID.

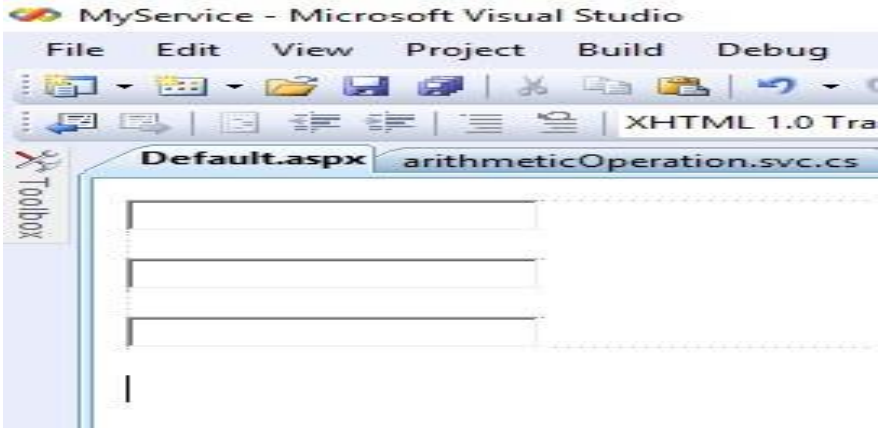


30. Now **click after textbox and press two times enter button to create vertical space between two textboxes**.



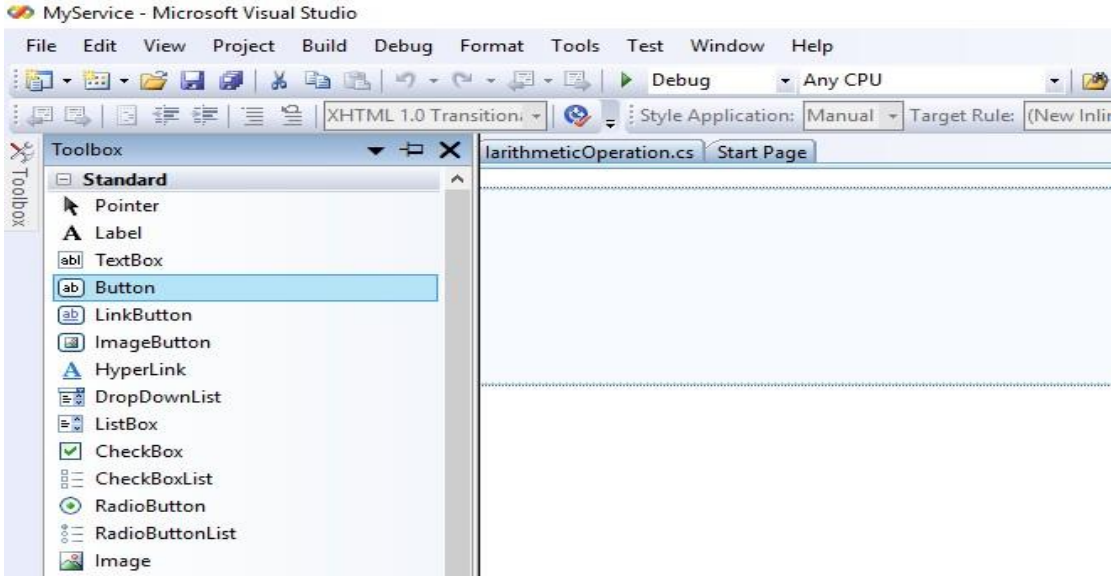


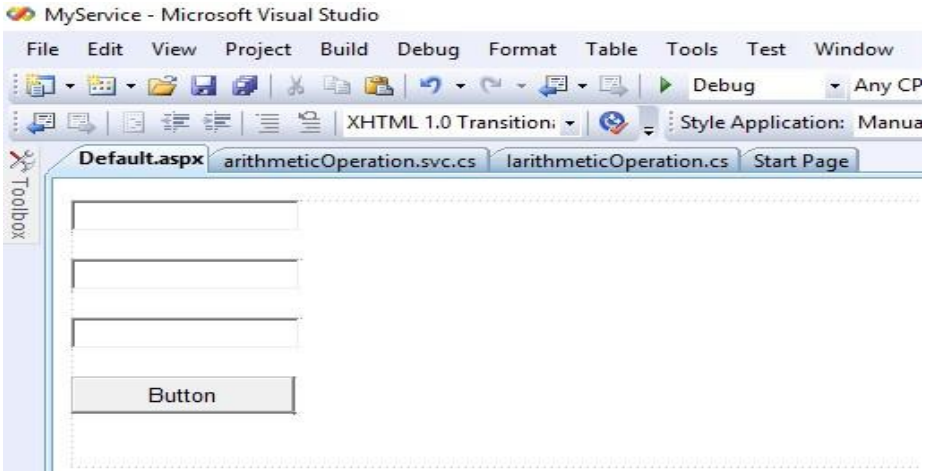
31. **Repeat step number 27 & 30 to create two more textboxes**. **Default ID** for these two textboxes will be **TextBox2** and **TextBox3** respectively. It will look like below.



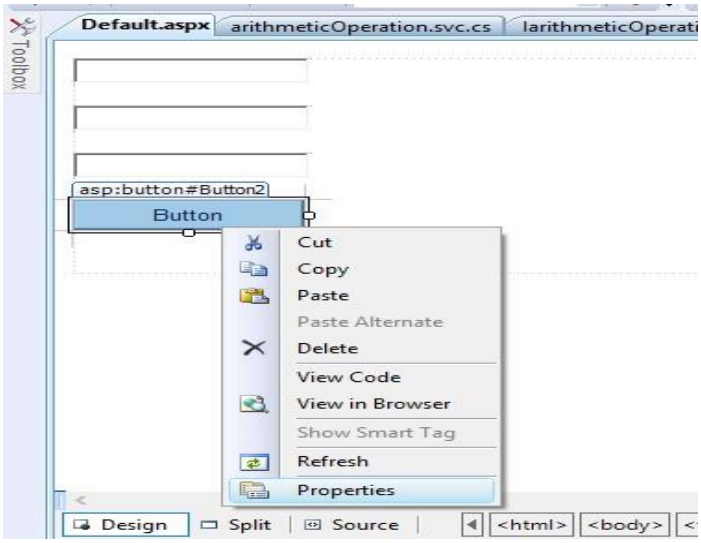
32. Now adding one button by follow below steps.

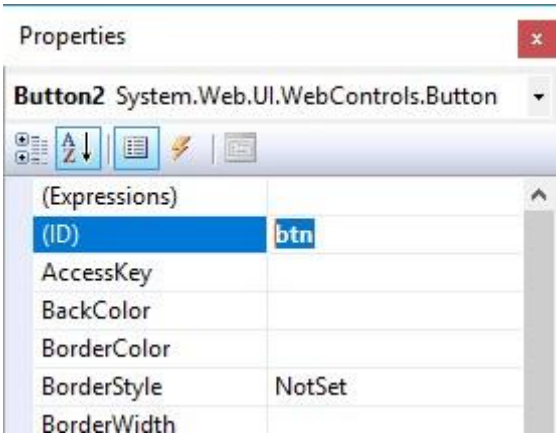
Click on Toolbox, select button and drag it into the blank screen.

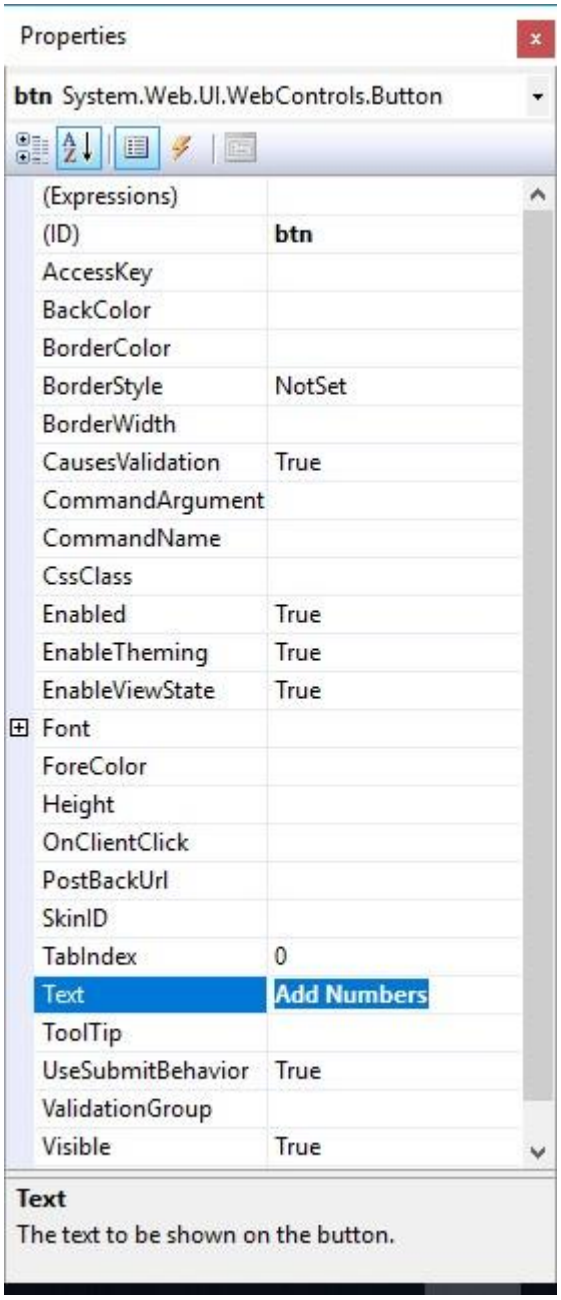




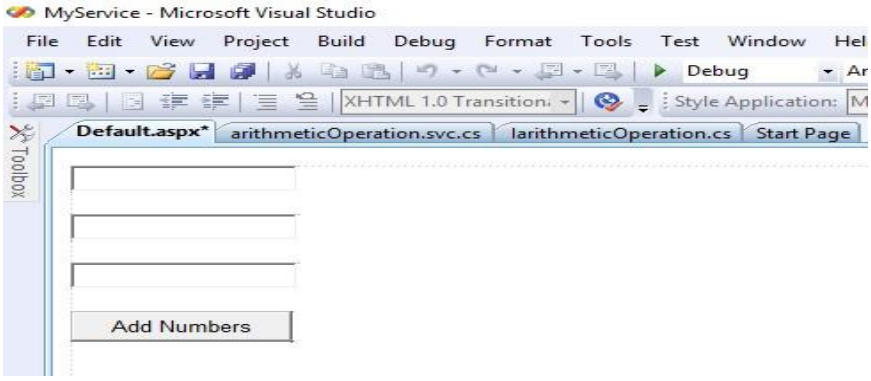
33. Right click on button and select Properties to give its ID and text.







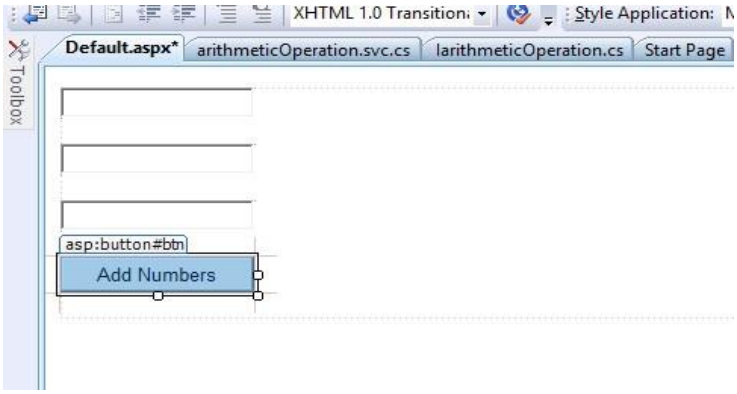
So in this way I have given **ID as btn and Text as Add Numbers**.

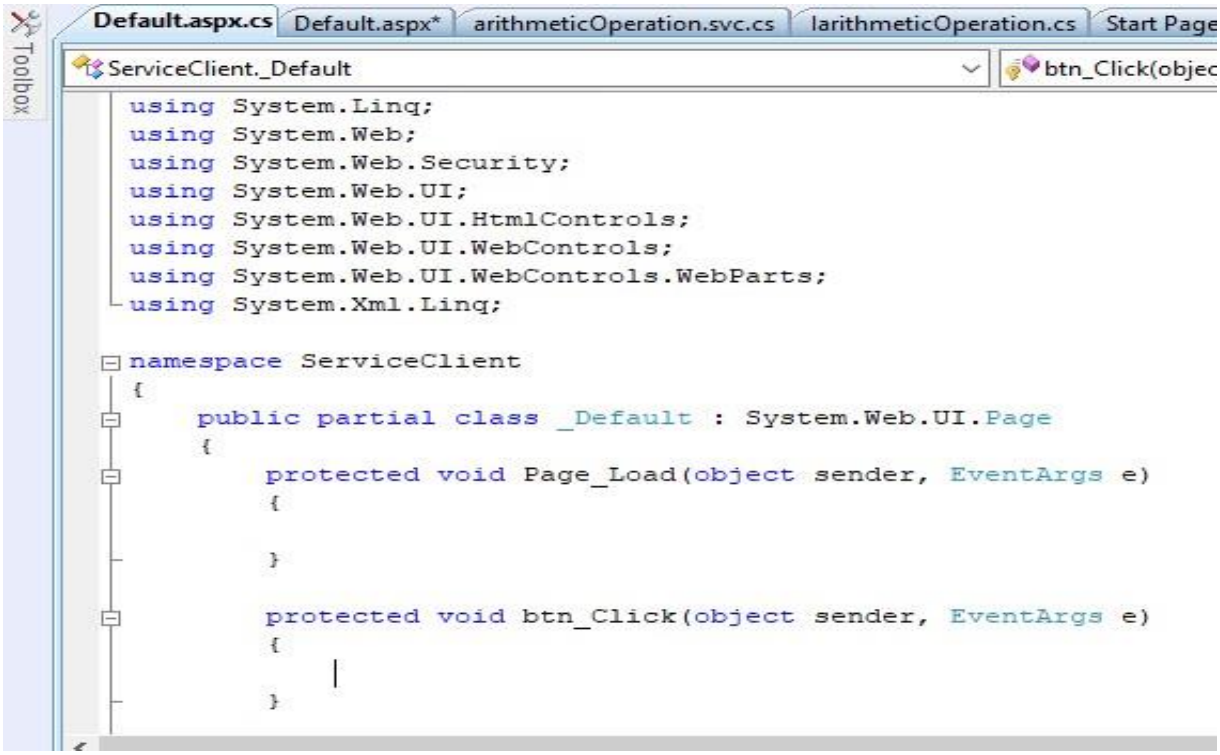


Now I'm going to create an even that will trigger by click on this button. It will get the data from first two TextBoxes and Using WCF service it will add those two numbers. Result of the service will displayed in third textbox.

As we have created two methods in WCF service. You can add one more button to call the second service method. But I'm going to use only one service method.

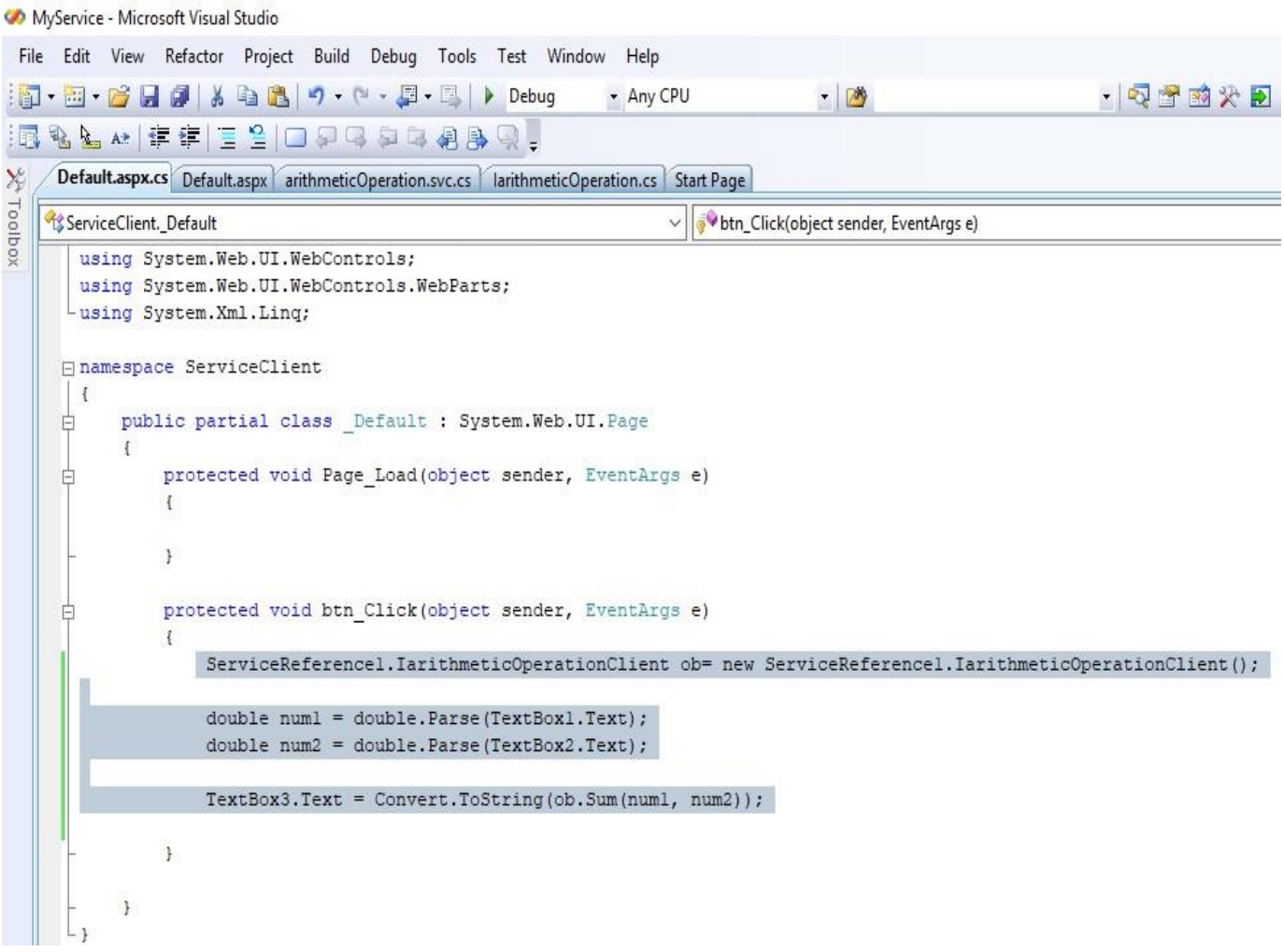
34. Now to add event on button click, **double click on button**. It will automatically navigate you to the block where you can add your codes for event.



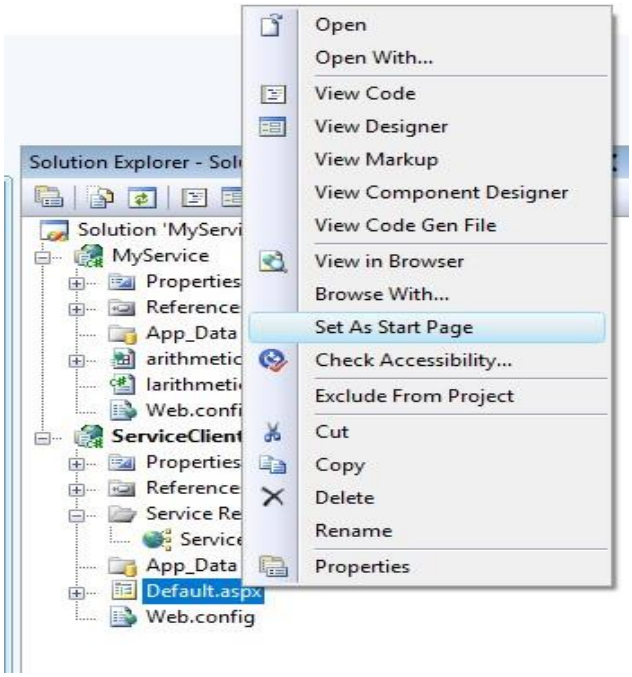


35. Now **add the following code into this block** and **press Ctrl+S** to save the changes.

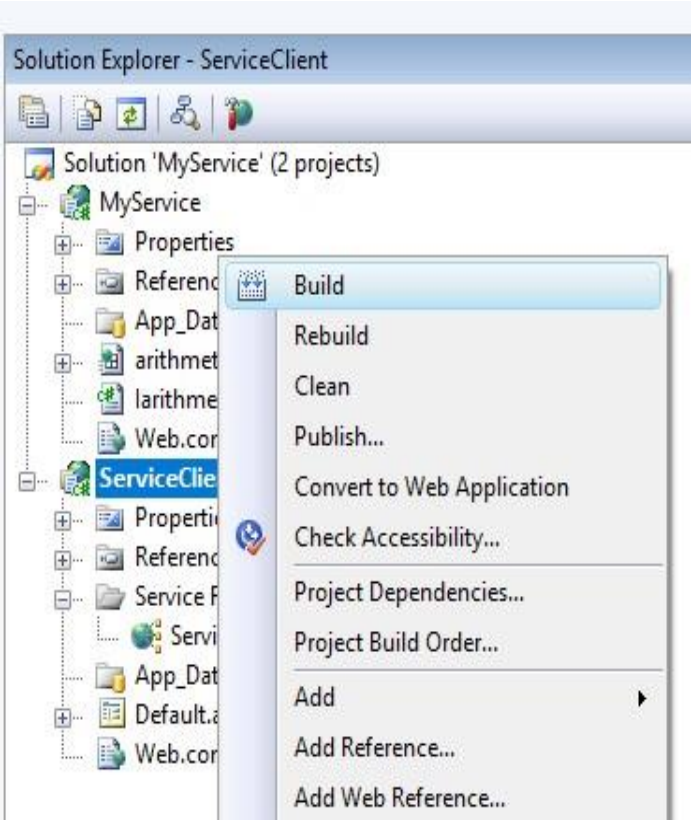
```
ServiceReference1.IarithmeticOperationClient ob= new
ServiceReference1.IarithmeticOperationClient();
 double num1 = double.Parse(TextBox1.Text);
double num2 = double.Parse(TextBox2.Text);

TextBox3.Text = Convert.ToString(ob.Sum(num1, num2));
```



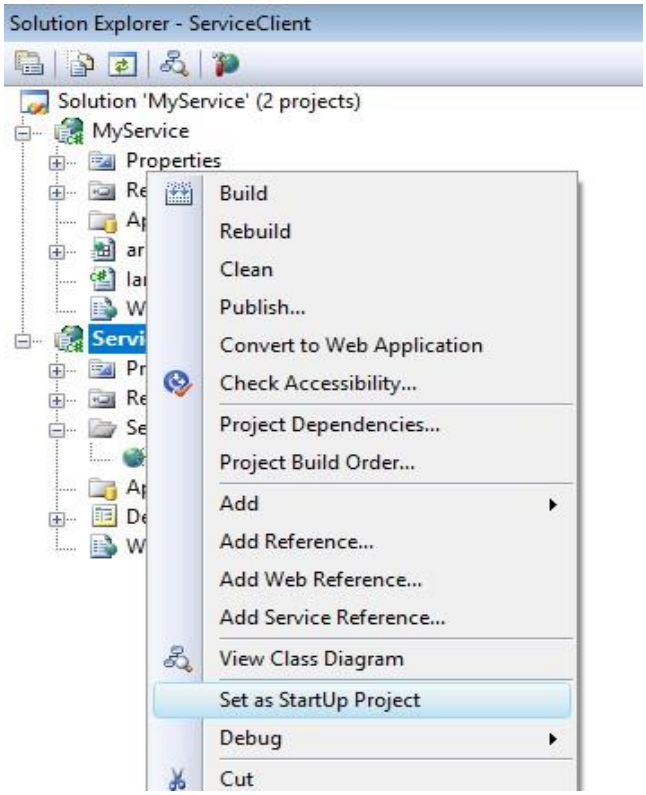
36. Now **right click on Default.aspx in ServiceClient set it as start page**.



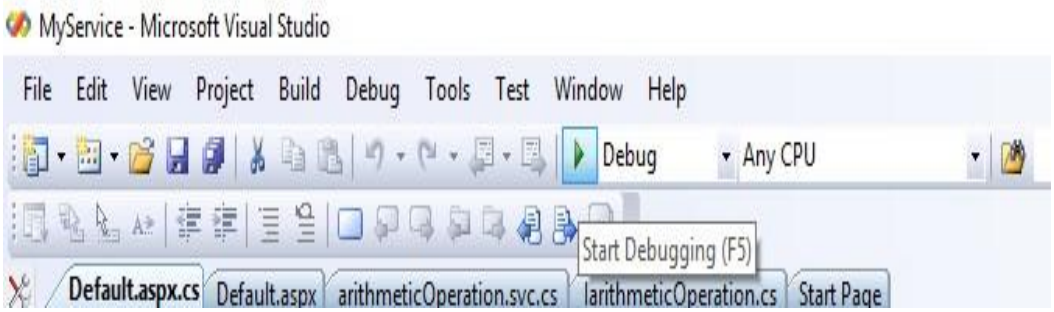
37. Right click on ServiceClient and build the project.



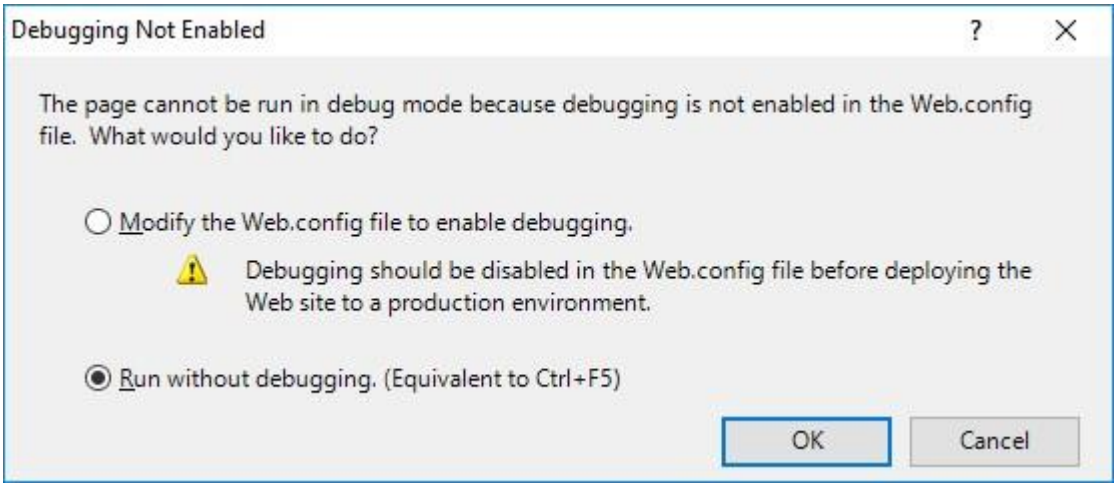
38. Again **right click on ServiceClient** and **set it as StartUp project**.



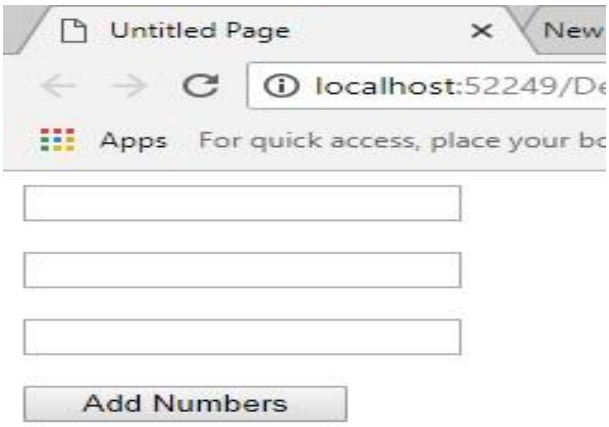
39. Now **click on Run button or press F5** to run this project.



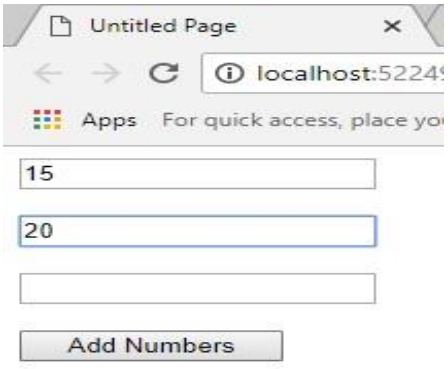
40. **Select run without debugging** and **click OK button**.

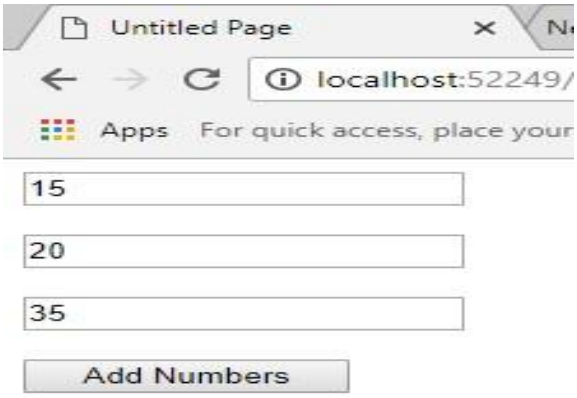


41. A window will open in browser like below.



42. Now **enter two numbers in first two boxes** and **click on Add Numbers** button. Then addition of above two numbers will displayed into third textbox.



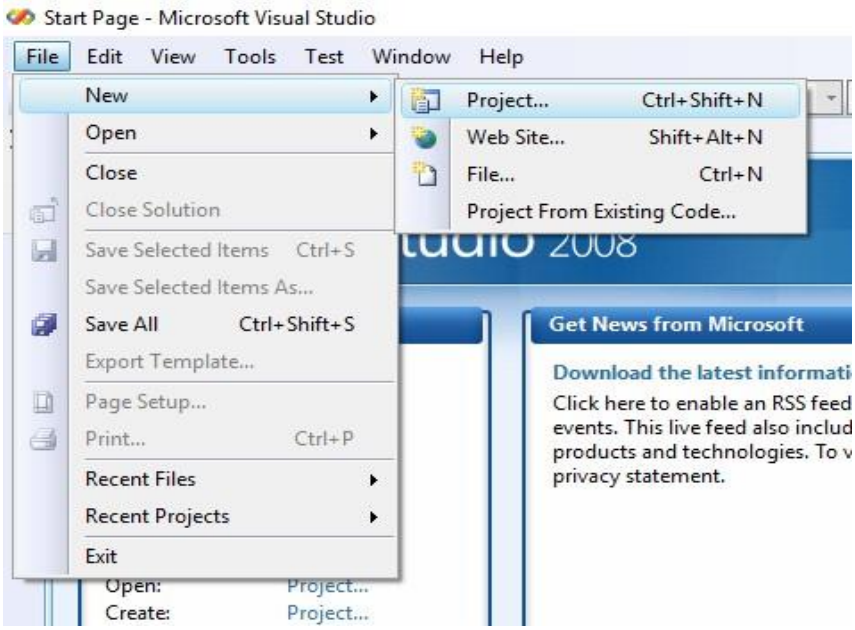


You can create one more button for multiplication event that we have created in WCF service.

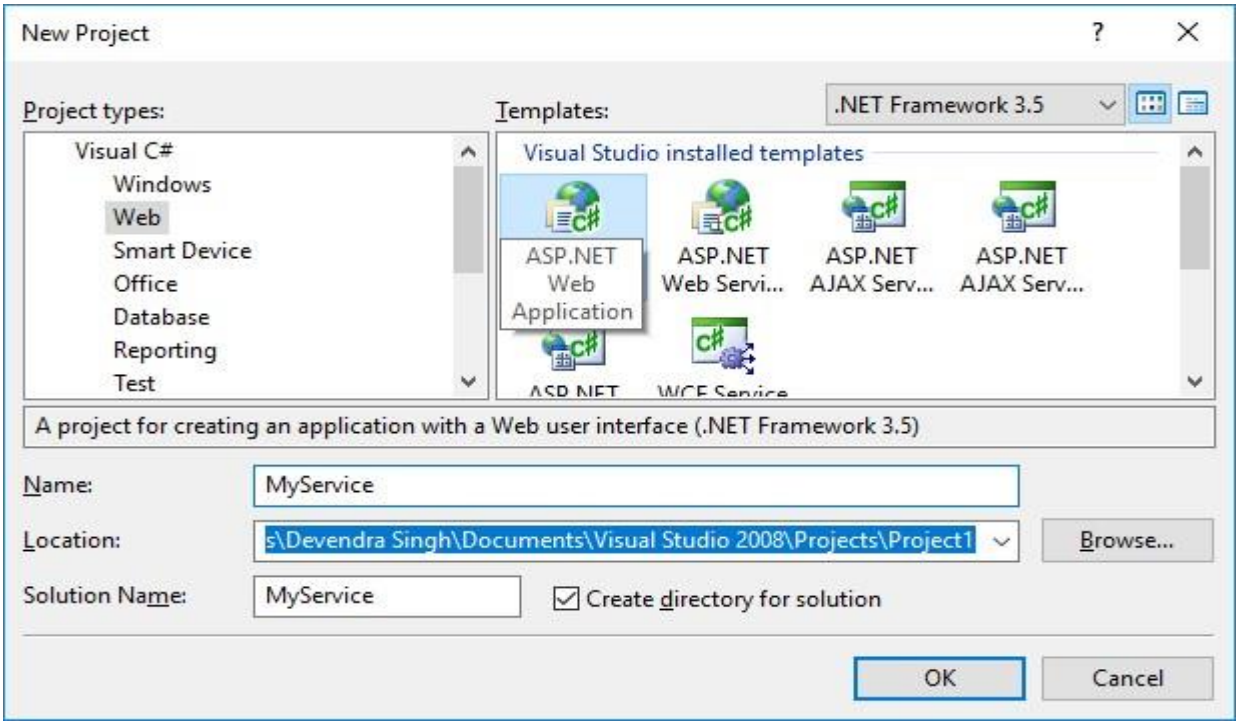
Practical-9

Aim: **Use WCF to create a basic ASP.NET Asynchronous JavaScript and XML (AJAX) service.**

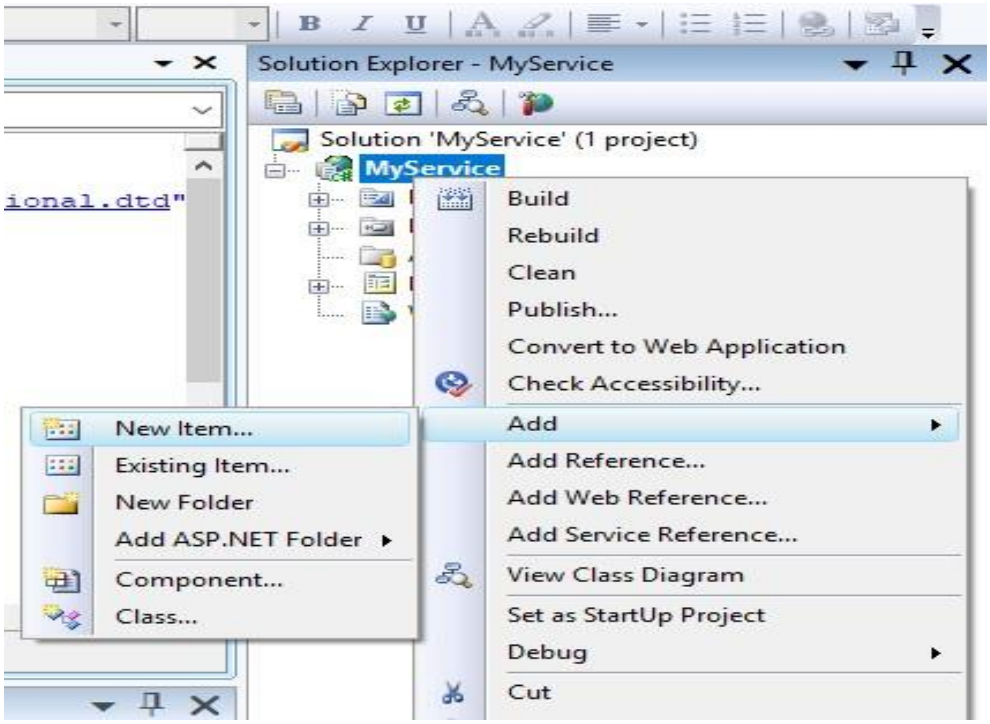
1. **Open Visual Studio** to create a Web Application**.**
   File -> New -> Project



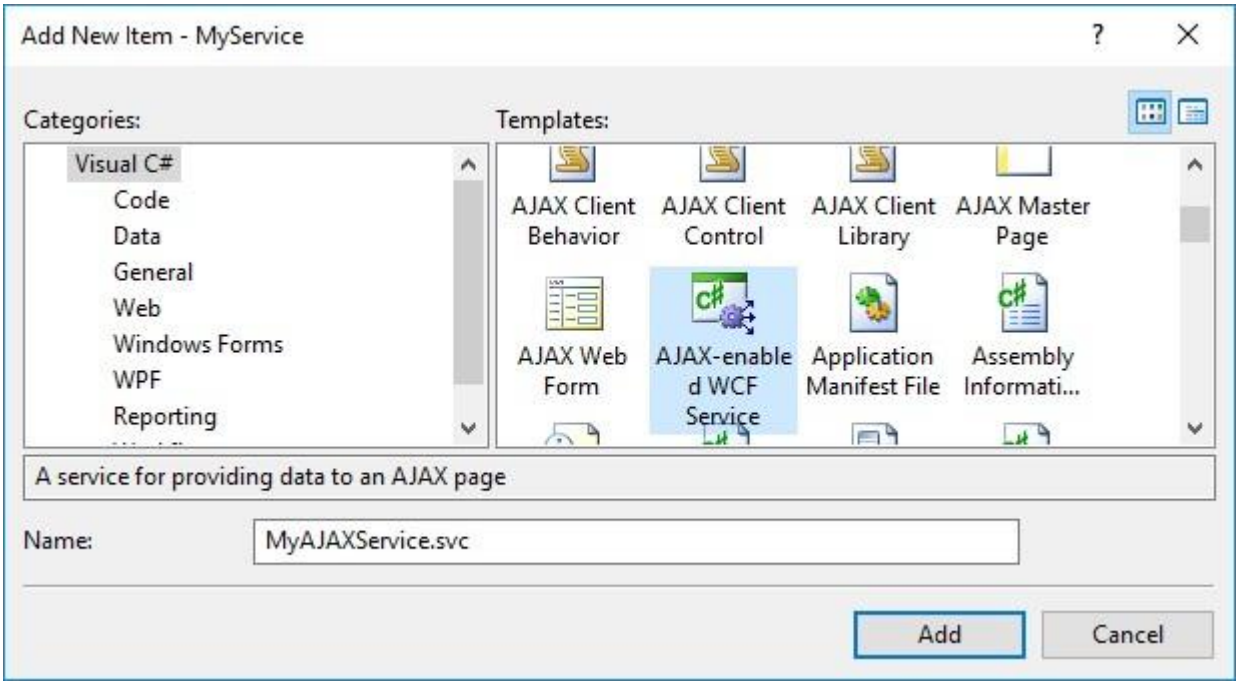
2. **In Project Types, select Web and in Templates, select ASP.NET Web Application**.
   Give MyService name to this web application and **click on OK** button.



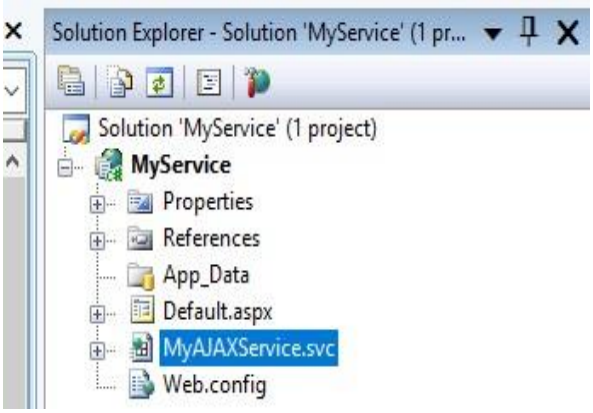
3. Now we are going to add AJAX -enabled WCF Service. **Go to solution Explorer**. **Right click on MyService -> Add -> New Item.**



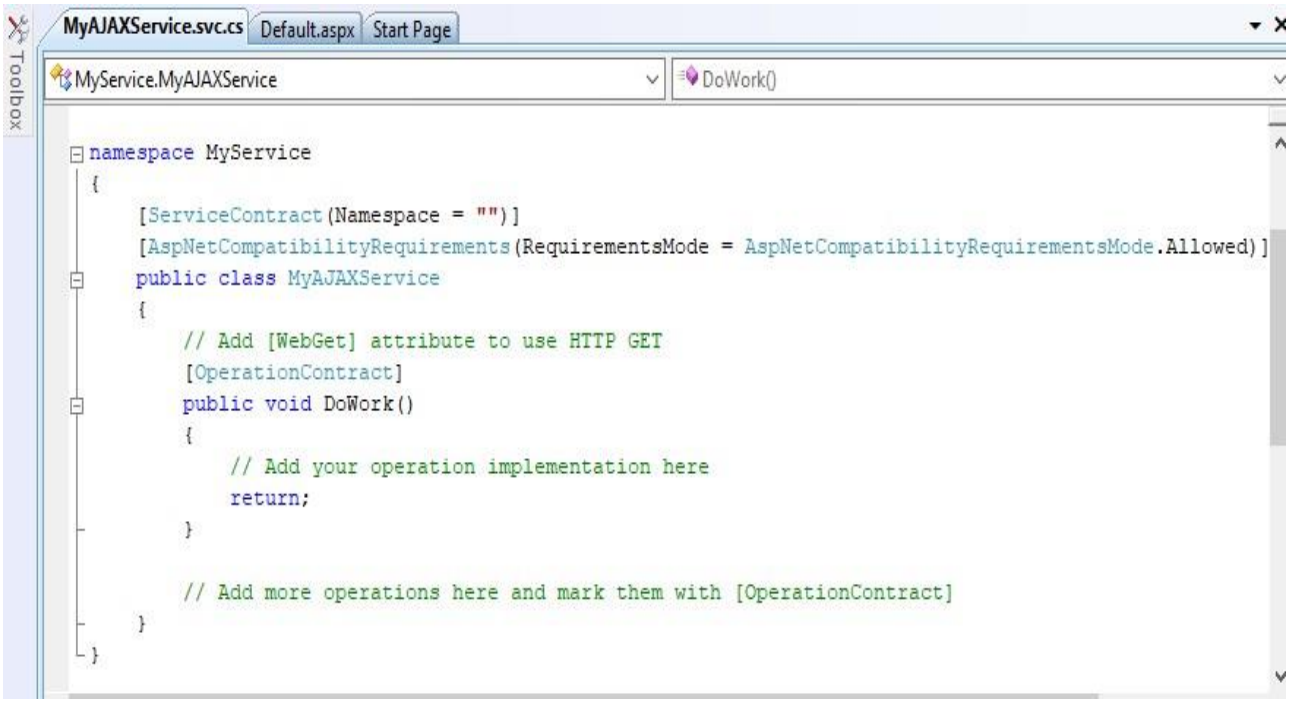
4. **In Templates select AJAX-enabled WCF Service** and **give MyAJAXService name** to it. After that **press OK button**.



5. As **you can see in solution explorer, service is added to the web application**.

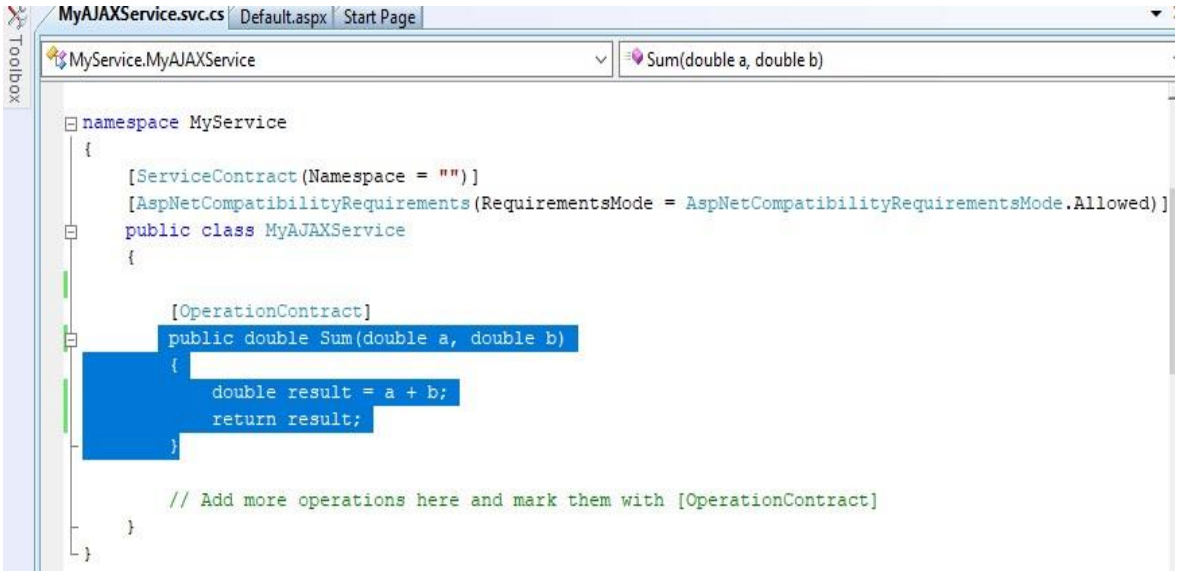


6. **Open it by double click** on it. It will look like below.



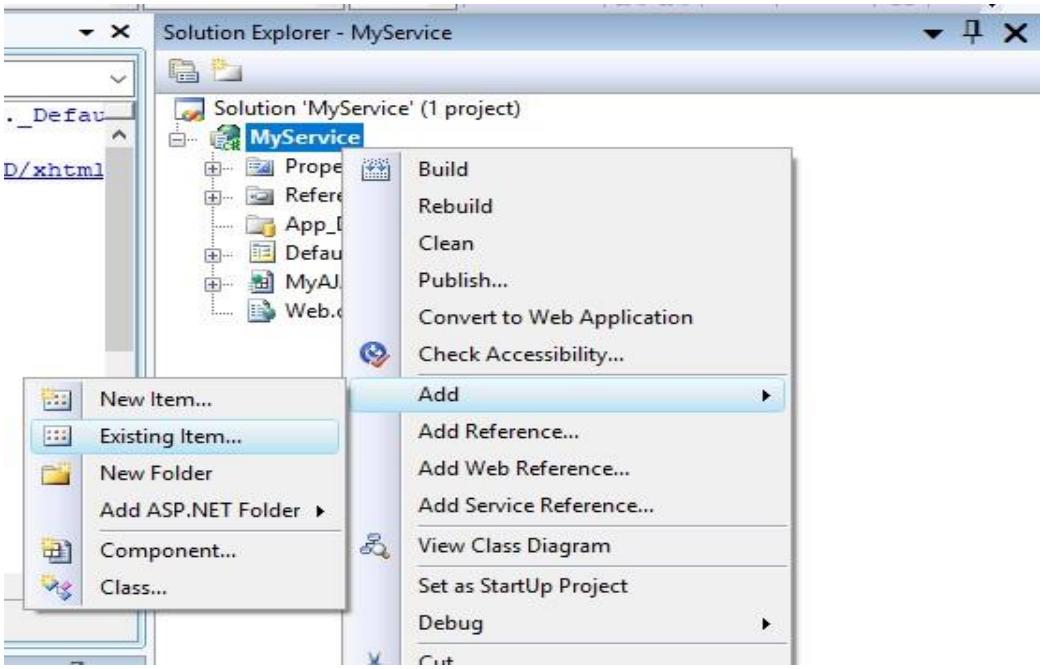
7. **Replace the DoWork service method with** another method. As I'm going to add a **service method Sum** for addition of two numbers. You can add any method. But accordingly you have to change the calling of this service. **After adding the below code, press Ctrl+S to save the changes.**

```
  public double Sum(double a, double b)
        {
            double result = a + b;
return result;
        }
```

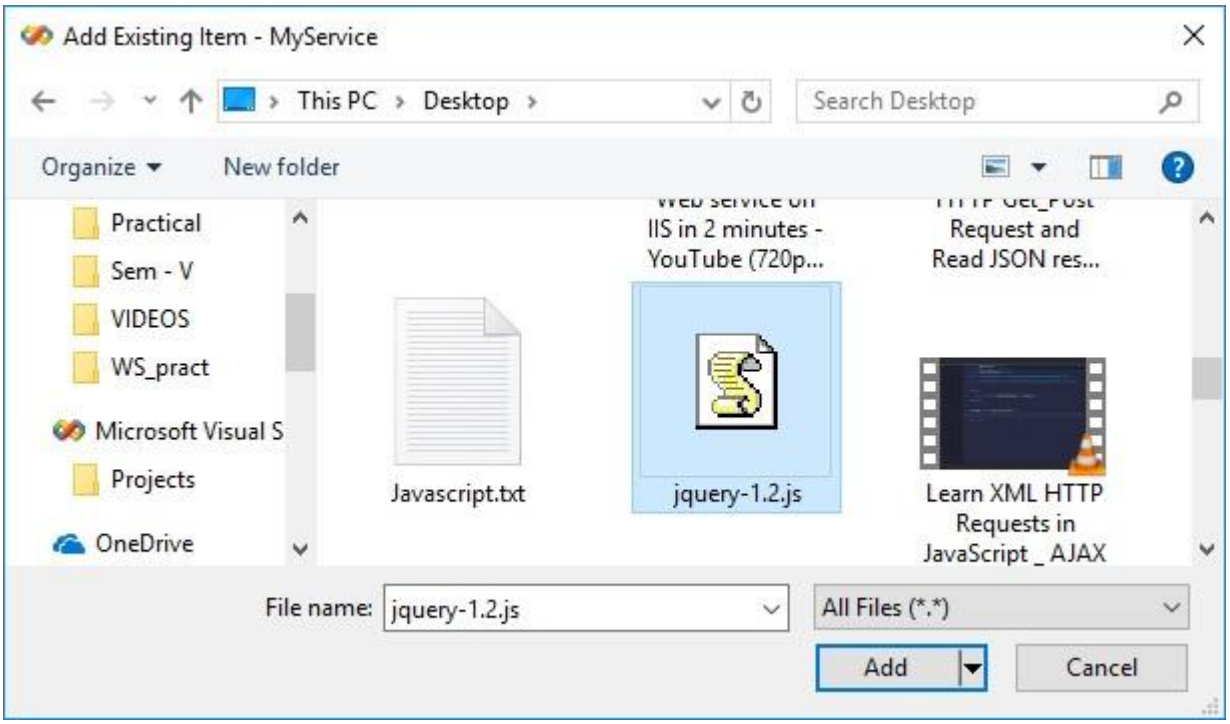


8. As I will to use jquery to call above WCF Service. So **I need to add library for jquery**. I have downloaded it and I'm going to add it to my Web Application.

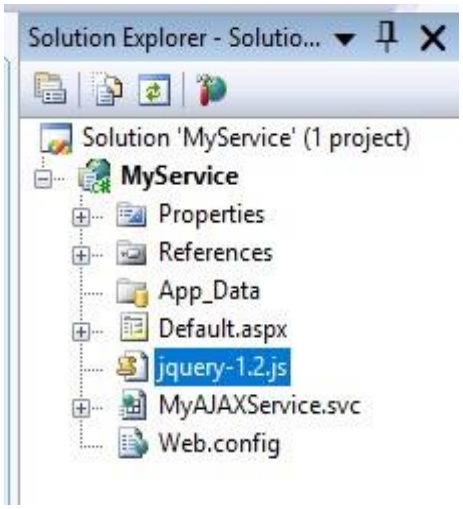
Right click on MyService -> Add -> Existing Item



9. I have kept it on Desktop. So **select it and press Add** button.

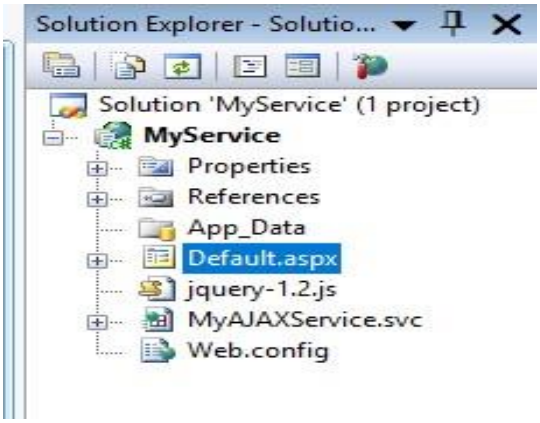


10. As you can see library is added to application.

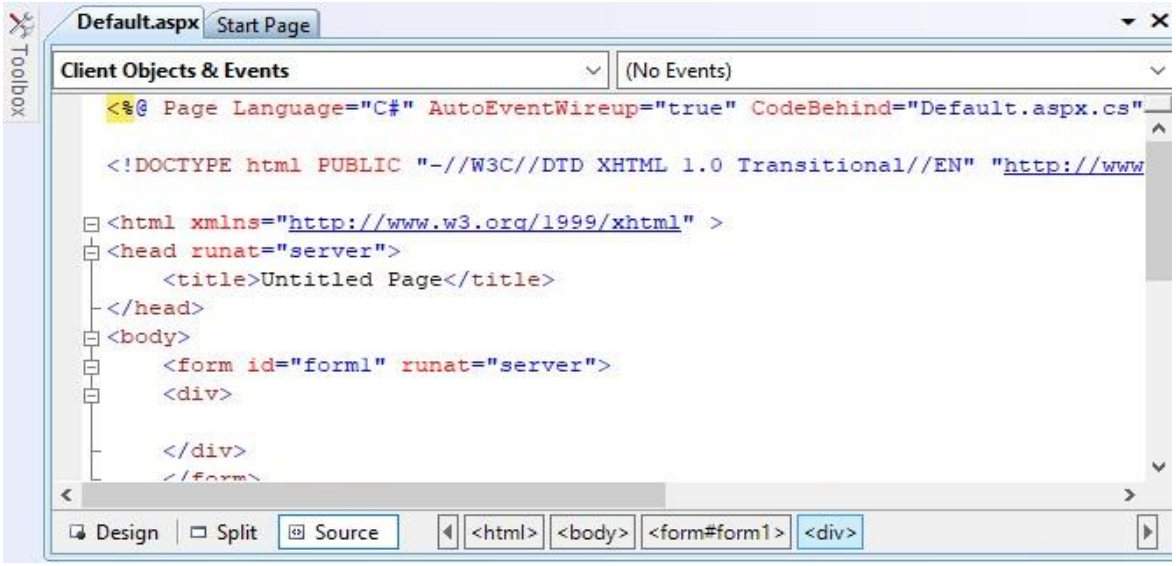


11. Now I'm going to consume that service.

Open Default.aspx page from Solution Explorer by double click on it.

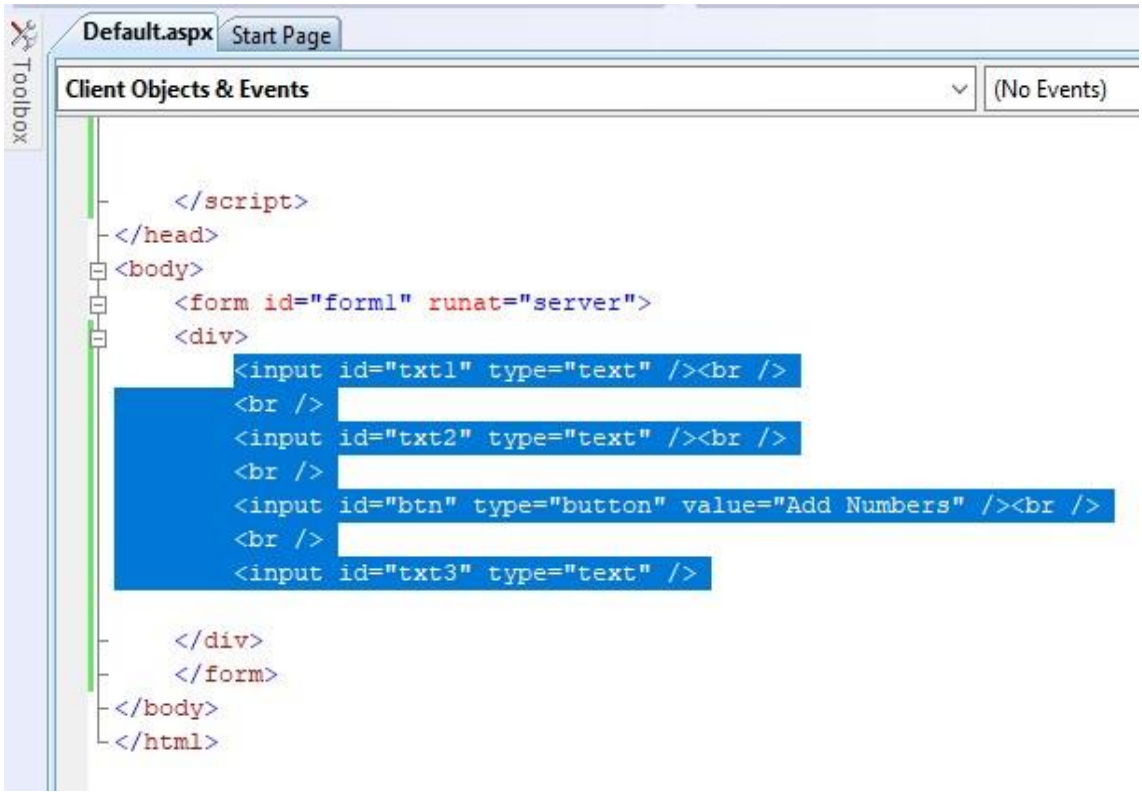


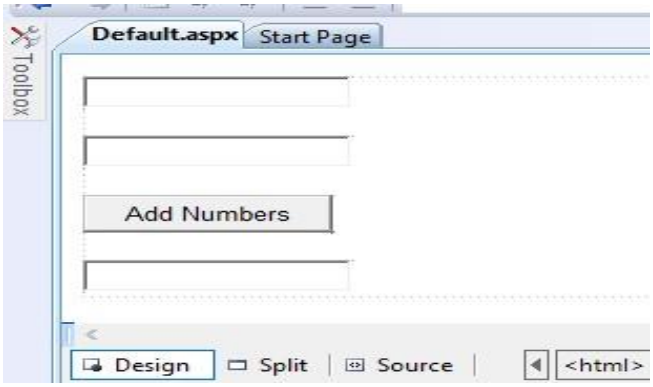
12. It will open in Source mode like below.



13. Add the following code in between DIV tag. It will create three textboxes and one button. You can see it in Design mode.

```
    <input id="txt1" type="text" /><br />
        <br />
        <input id="txt2" type="text" /><br />
        <br />
        <input id="btn" type="button" value="Add
Numbers" /><br />
        <br />
       <input id="txt3" type="text" />
```





14. We have given following ID's to above components. We will use these ID's in jquery .

1st Textbox = **txt1**

2nd Textbox = **txt2**

Button = **btn**

3rd Textbox = **txt3**

1st and 2nd textboxes are for enter two numbers. When you will click on button then jquery will get triggered and by calling the service we will get output in 3rd textbox.

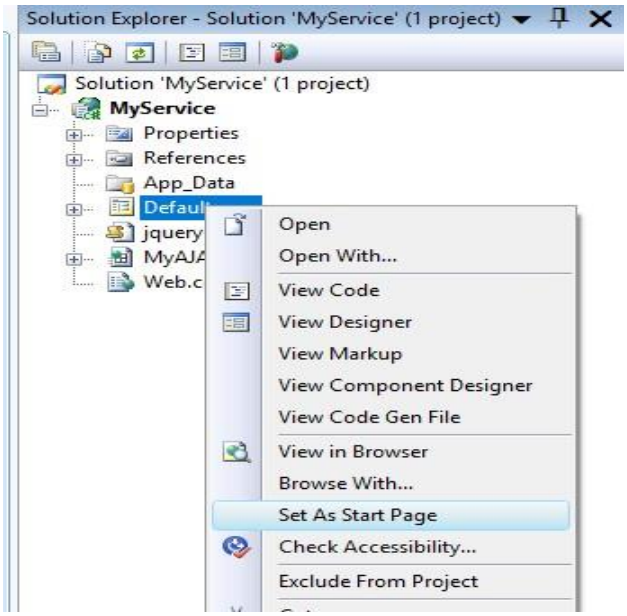
Now again **go into Source mode**.

15. Add the following jquery code in HEAD tag and then **press Ctrl+S to save** the changes.

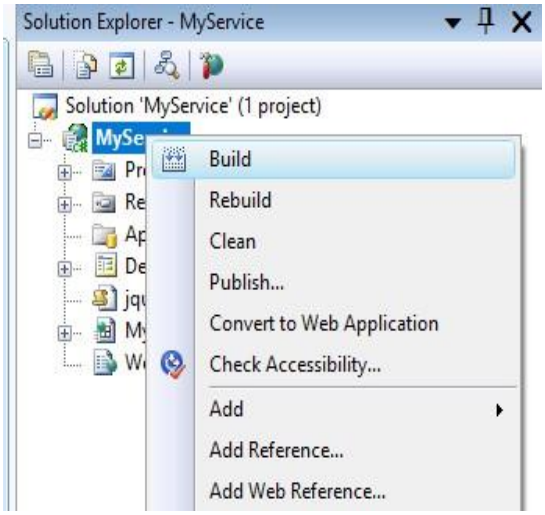
```
<script type="text/javascript" src="jquery-1.2.js"></script>

    <script type="text/javascript" >

        $(document).ready(function (){
          $("#btn").click(function (){
  var num1 = $("#txt1").val();                    var
  num2 = $("#txt2").val();

                $.ajax({
                url: "MyAJAXService.svc/Sum",
  type: "POST",
              contentType: "application/json; charset=utf-8",
  data:JSON.stringify({a: num1, b: num2}),
            dataType: "json",
  success : function(data){
                $("#txt3").val(data.d);
              },                  error :
  function(err){
  alert(err);
              }
                });
          });
      });
   </script>
```

As you can see in first line of code, in src I have given the path of library that I have added using step 8 and 9. Without this library our code will not work. So it is mondatory.

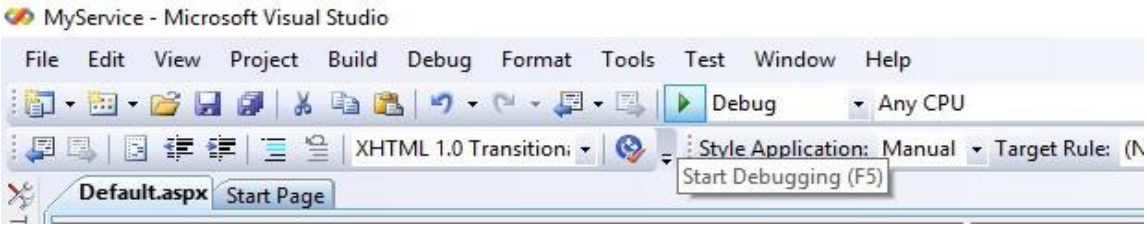
16. Now set Default.aspx page as start page.
Right click on Default.aspx -> Set As Start Page



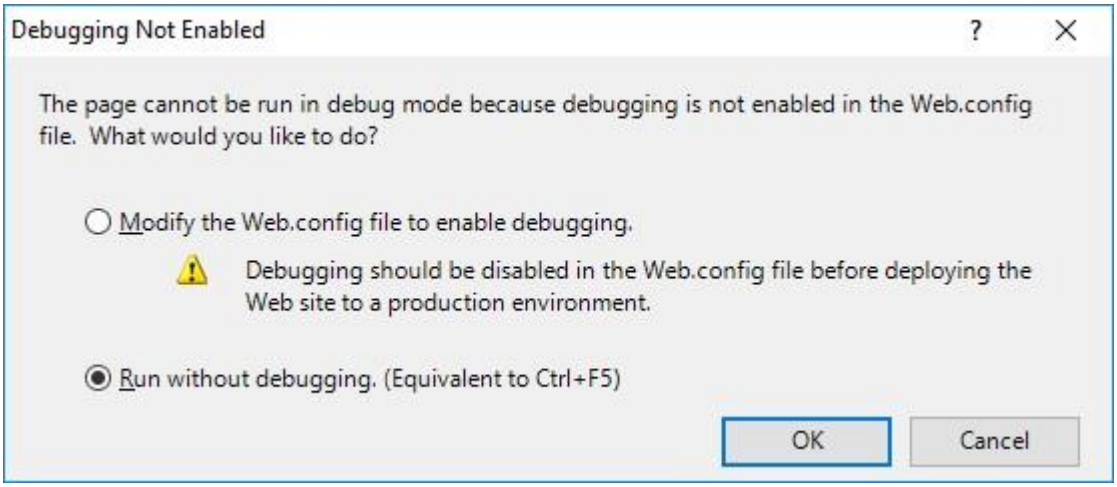
17. Build application.



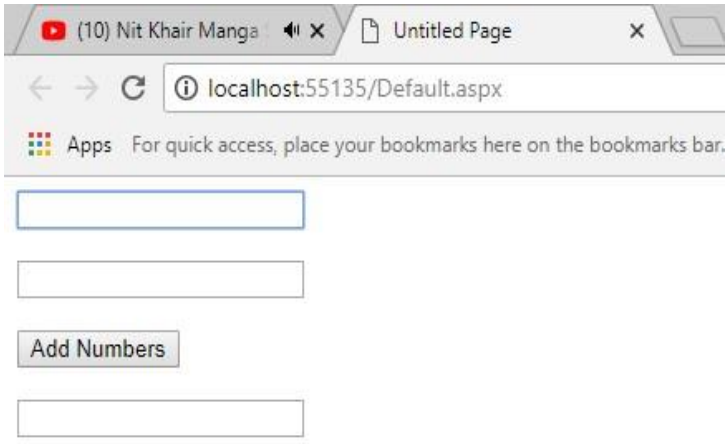
18. **Press Run button** in Toolbar.



19. **Select second option** and **press OK**.

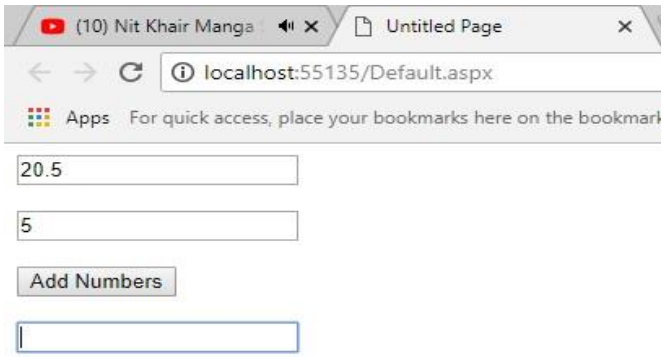


20. A window will open in browser like below.

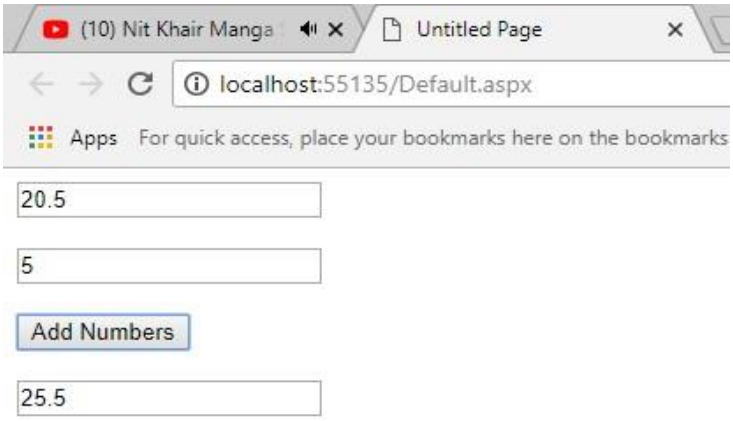


+

21. Giving two numbers.



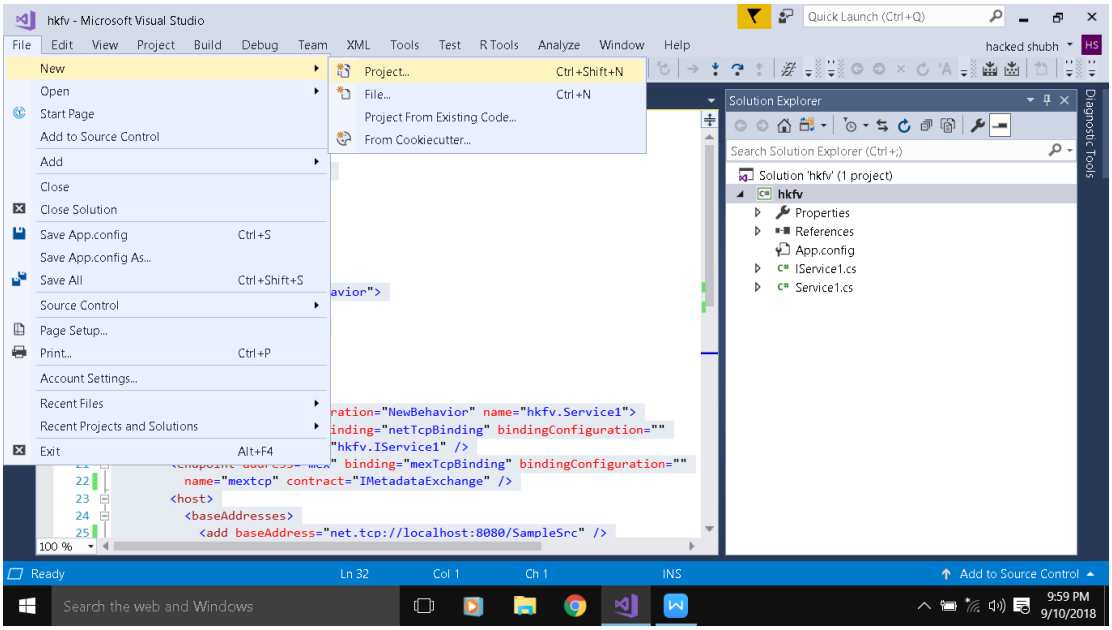
After button press.



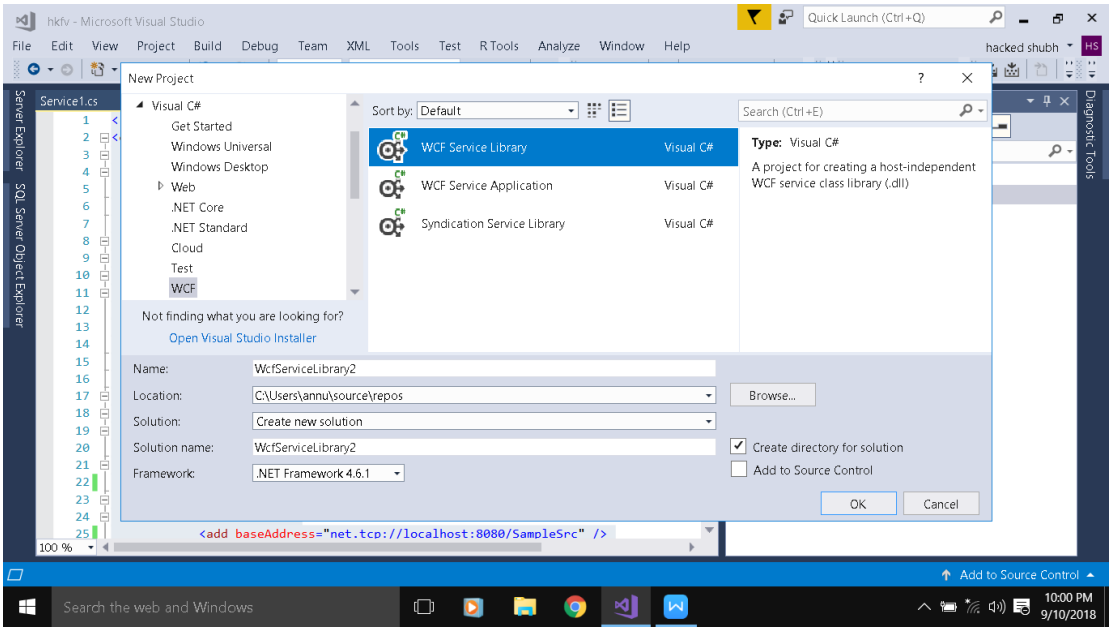
PRACTICAL-10

Aim: Demmonstrating endpoints in wcf

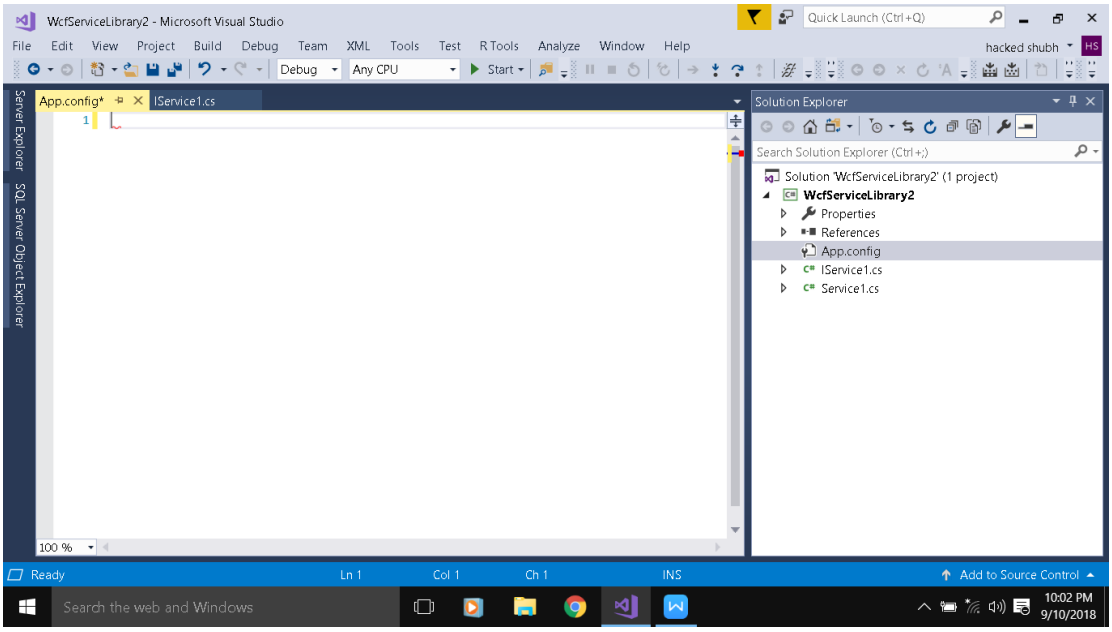
1.Theory:create a new project



2.Select wcf service library and rename it accordingly



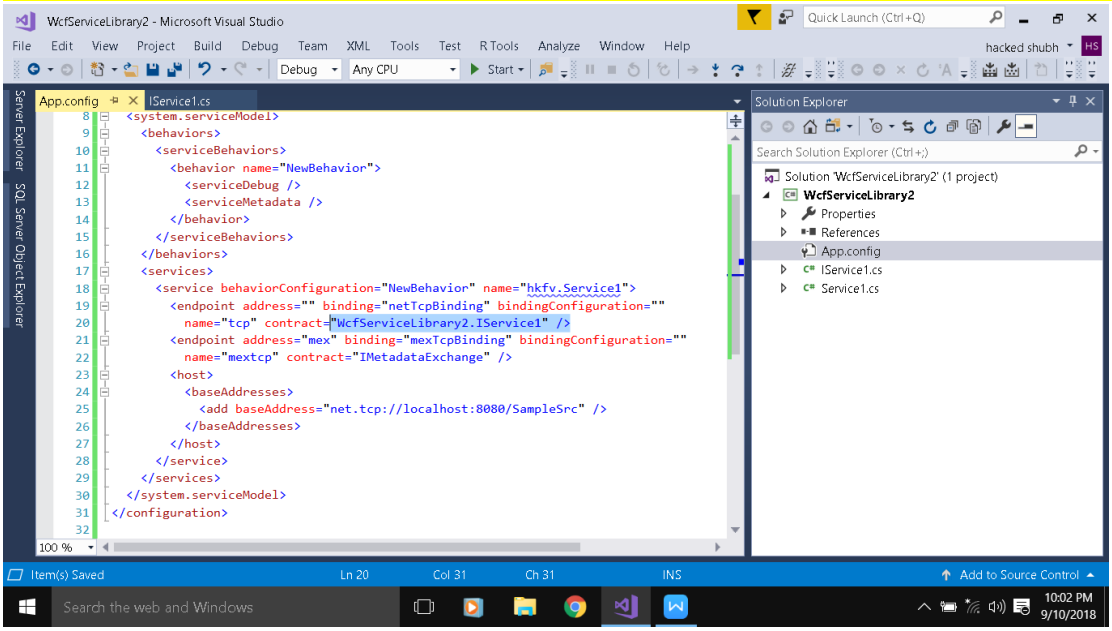
3.Keep everything as it is and open Appconfig file and erase every data and copy paste the following code



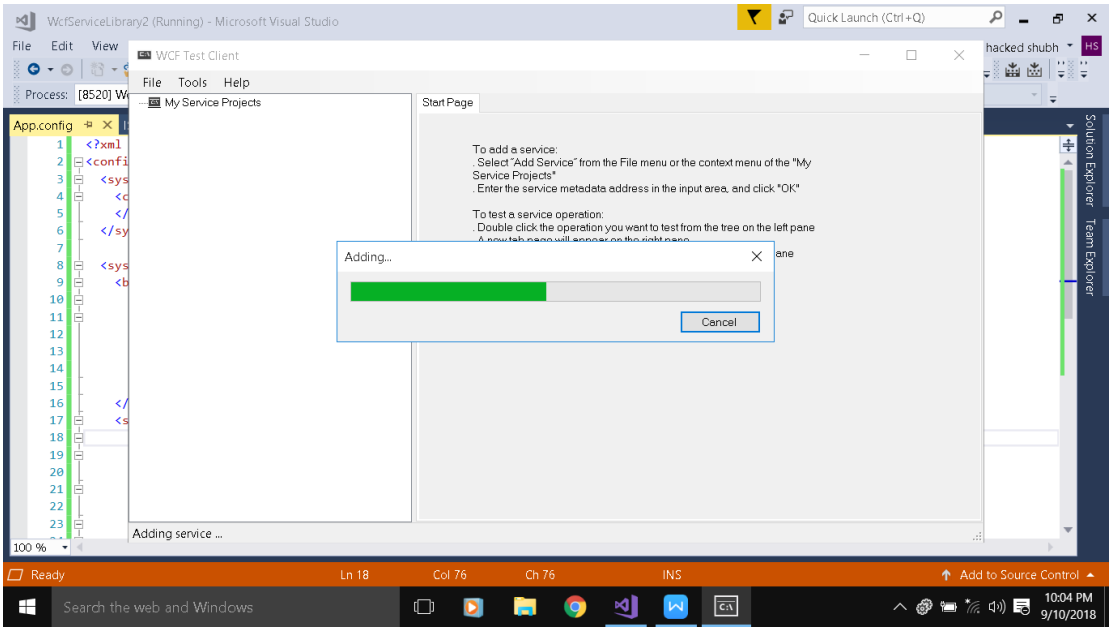

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <system.web>
    <compilation debug="true">
    </compilation>
  </system.web>

  <system.serviceModel>
    <behaviors>
```

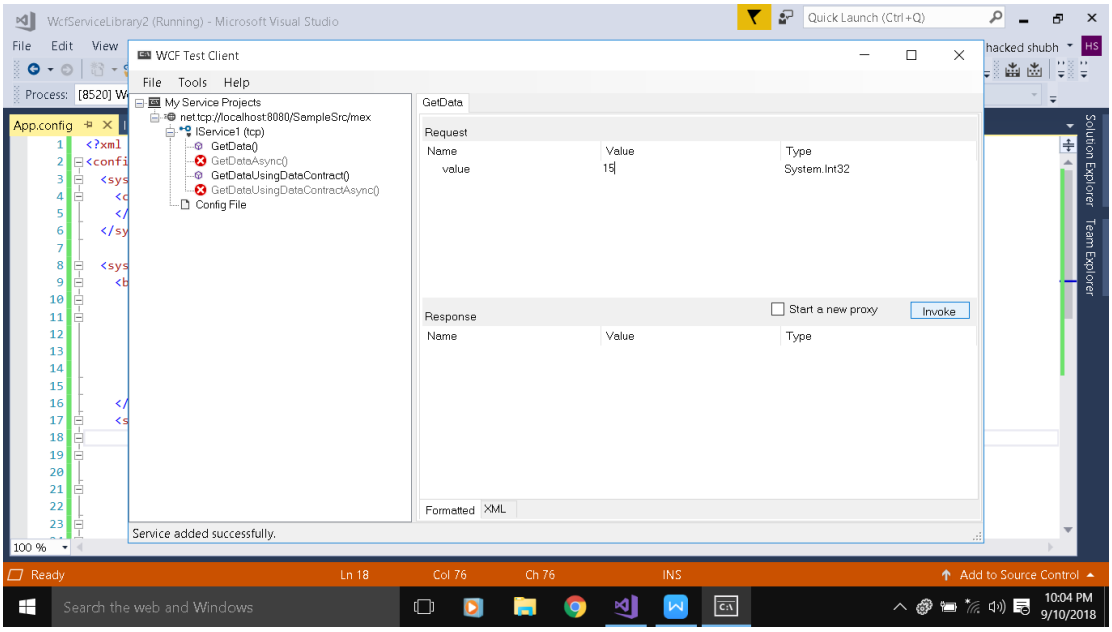
```
      <serviceBehaviors>
        <behavior name="NewBehavior">
          <serviceDebug />
          <serviceMetadata />
        </behavior>
      </serviceBehaviors>
    </behaviors>
    <services>
      <service behaviorConfiguration="NewBehavior" name="hkfv.Service1">
        <endpoint address="" binding="netTcpBinding" bindingConfiguration=""
          name="tcp" contract="hkfv.IService1" />
        <endpoint address="mex" binding="mexTcpBinding" bindingConfiguration=""
          name="mextcp" contract="IMetadataExchange" />
        <host>
          <baseAddresses>
            <add baseAddress="net.tcp://localhost:8080/SampleSrc" />
          </baseAddresses>
        </host>
      </service>
    </services>
  </system.serviceModel>
</configuration>
```

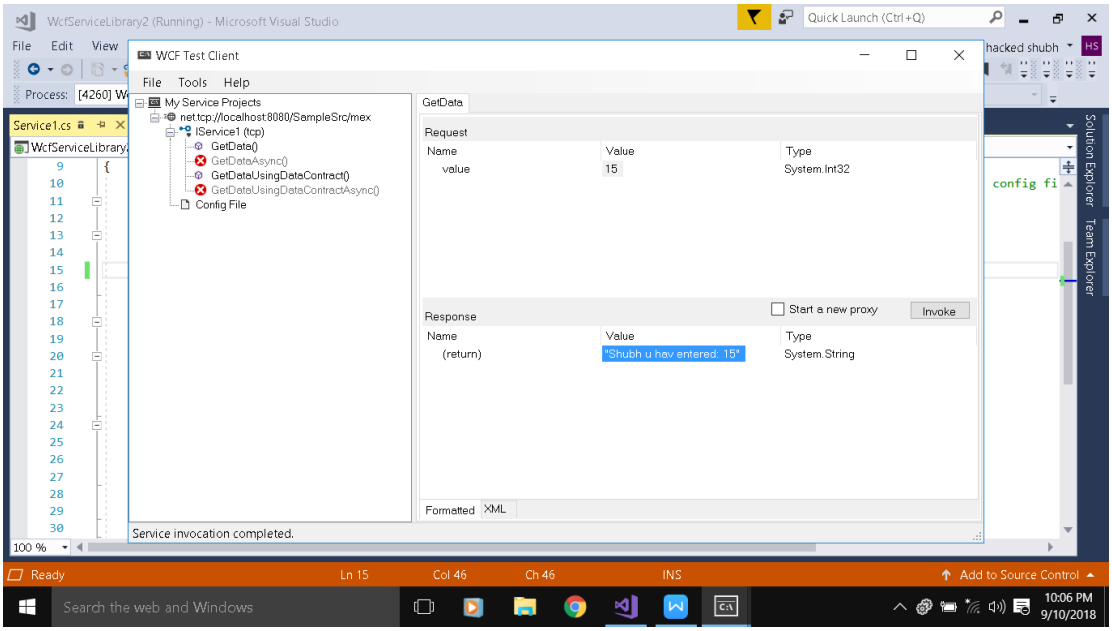
Note: in Name and Contract attribute write the name of your wcf application



4.Build and run the program


WcfServiceLibrary2 (Running) - Microsoft Visual Studio
Quick Launch (Ctrl+Q)
File Edit View
hacked shubh
WCF Test Client
File Tools Help
My Service Projects
Start Page
To add a service:
. Select "Add Service" from the File menu or the context menu of the "My Service Projects"
. Enter the service metadata address in the input area, and click "OK"
To test a service operation:
. Double click the operation you want to test from the tree on the left pane
Adding...
Cancel
Adding service ...
App.config
Solution Explorer
Team Explorer
100 %
Ready
Ln 18
Col 76
Ch 76
INS
Add to Source Control
Search the web and Windows
10:04 PM
9/10/2018


WcfServiceLibrary2 (Running) - Microsoft Visual Studio
Quick Launch (Ctrl+Q)
File Edit View
hacked shubh
WCF Test Client
File Tools Help
My Service Projects
net.tcp://localhost:8080/SampleSrc/mex
IService1 (tcp)
GetData()
GetDataAsync()
GetDataUsingDataContract()
GetDataUsingDataContractAsync()
Config File
GetData
Request
Name
Value
Type
value
15
System.Int32
Response
Start a new proxy
Invoke
Formatted
XML
Service added successfully.
App.config
Solution Explorer
Team Explorer
100 %
Ready
Ln 18
Col 76
Ch 76
INS
Add to Source Control
Search the web and Windows
10:04 PM
9/10/2018


WcfServiceLibrary2 (Running) - Microsoft Visual Studio
WCF Test Client
File Tools Help
My Service Projects
net.tcp://localhost:8080/SampleSrc/mex
IService1 (tcp)
GetData()
GetDataAsync()
GetDataUsingDataContract()
GetDataUsingDataContractAsync()
Config File
GetData
Request
Name Value Type
value 15 System.Int32
Response
Start a new proxy
Invoke
Name Value Type
(return) "Shubh u hav entered: 15" System.String
Formatted XML
Service invocation completed.
Ready Ln 15 Col 46 Ch 46 INS
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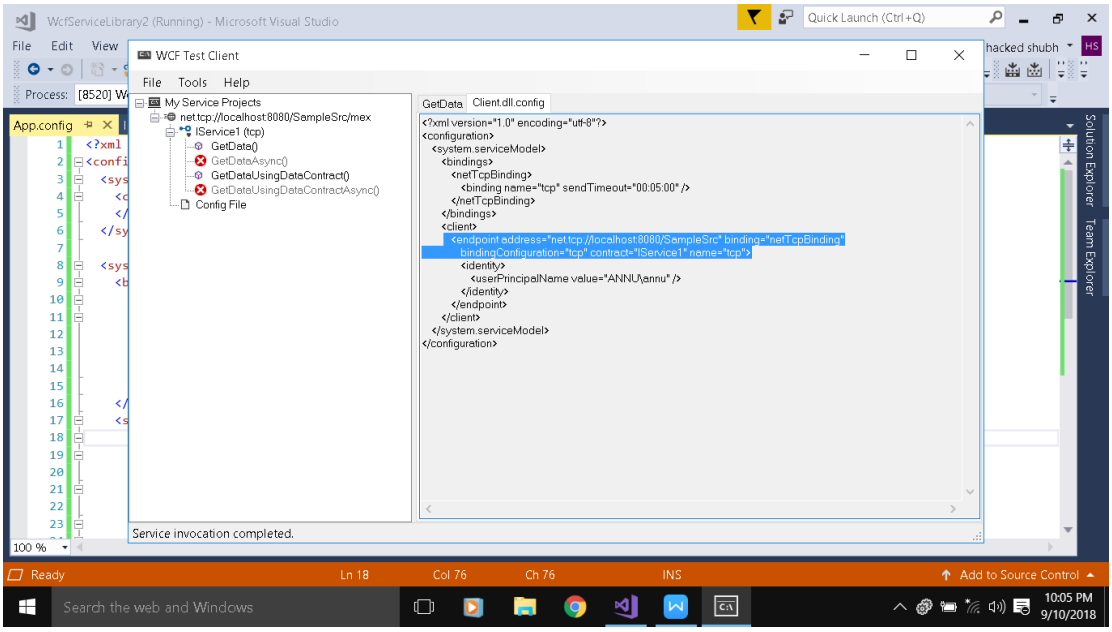
WcfServiceLibrary2 (Running) - Microsoft Visual Studio
WCF Test Client
File Tools Help
My Service Projects
net.tcp://localhost:8080/SampleSrc/mex
IService1 (tcp)
GetData()
GetDataAsync()
GetDataUsingDataContract()
GetDataUsingDataContractAsync()
Config File
GetData Client.dll.config
<?xml version="1.0" encoding="utf-8"?>
<configuration>
<system.serviceModel>
<bindings>
<netTcpBinding>
<binding name="tcp" sendTimeout="00:05:00" />
</netTcpBinding>
</bindings>
<client>
<endpoint address="net.tcp://localhost:8080/SampleSrc" binding="netTcpBinding"
bindingConfiguration="tcp" contract="IService1" name="tcp">
<identity>
<userPrincipalName value="ANNU\annu" />
</identity>
</endpoint>
</client>
</system.serviceModel>
</configuration>
Service invocation completed.
Ready Ln 18 Col 76 Ch 76 INS
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