**Experiment No. 4**

**Aim:** Implementation of Web services in SOAP for JAVA Applications  
**Theory:  
Points to be included:**1. What is a web service?

A Web service is a method of communication between two electronic devices  
over a network. It is a software function provided at a network address over the  
Web with the service always on as in the concept of utility computing. Many  
organizations use multiple software systems for management.

2. Explain in detail about SOAP web service.

SOAP is an acronym for Simple Object Access Protocol. It is an XML-based  
messaging protocol for exchanging information among computers. SOAP is an  
application of the XML specification.

* SOAP is a communication protocol designed to communicate via Internet.
* SOAP can extend HTTP for XML messaging.
* SOAP provides data transport for Web services.
* SOAP can exchange complete documents or call a remote procedure.
* SOAP can be used for broadcasting a message.
* SOAP is platform- and language-independent.
* SOAP is the XML way of defining what information is sent and how.
* SOAP enables client applications to easily connect to remote services and  
  invoke remote methods.

Although SOAP can be used in a variety of messaging systems and can be  
delivered via a variety of transport protocols, the initial focus of SOAP is remote  
procedure calls transported via HTTP.

Other frameworks including CORBA, DCOM, and Java RMI provide similar  
functionality to SOAP, but SOAP messages are written entirely in XML and are  
therefore uniquely platform- and language-independent.

Step 1:- Open NetBeans IDE.

**Step 2 :-** Under **Categories:** select **Java Web**. **Step 3 :-** Under **Projects:** select **Web Application. Step 4 :-** Click **Next >**

**New Web Application** dialog box gets open.

**Step 5 :-** Under **Name and Location** tab, enter **Project Name:** as "**Calculator**".

**Step 6 :-** Click **Next >** .

**Step 8:-** Choose **Java EE 6 Web** as **Java EE Version:**. Keep rest as default.

**Step9:-** Click **Finish**.

Creating a SOAP Web Service called as "CalculatorService"

**Step 1:-** Right click on **Calculator** project and Select **New ---> Web Service...**

**Step 3:-** Enter the package name for the **CalculatorService** Web Service.

**Step 4:-** Click **Finish**.

**Step 5:-** After creating Web Service by name "**CalculatorService**"**.** Under **Web**

**Services** directory of the project, right click on the **CalculatorService** created and click on "**Add Operation**".

Deploy and Test the Web Service.

**Step 1:-** Right click on the "Calculator" project directory and click "Deploy". The Web Service gets deployed on the GlassFish Server.

Step 2:- Under Web Services directory of the project, right click on the CalculatorService created and click on "Test Web Service". It opens a browser window to test the CalculatorService Web Service

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* **To change this license header, choose License Headers in Project Properties.**

package com.webservice; import javax.jws.WebService; import javax.jws.WebMethod; import javax.jws.WebParam;

/\*\*

* **@author**

\*/

@WebService(serviceName = "calculatorservice") public class calculatorservice {

/\*\*

\* This is a sample web service operation

\*/

@WebMethod(operationName = "hello")

public String hello(@WebParam(name = "name") String txt) { return "Hello " + txt + " !";

}

/\*\*

\* Web service operation

\*/

@WebMethod(operationName = "sum")

public int sum(@WebParam(name = "num1") int num1, @WebParam(name = "num2") int num2) {

int sum = 0;

sum = num1 + num2;

//TODO write your implementation code here: return sum;

}

}