

## What is a Web Service?

***Definition -A web service is an application which performs communication amongst software spread across the internet.***

Imagine you own a business of gold jewelry. You build a website where users can browse your products, view their price and book them. Now, the price of gold fluctuates on an hourly basis and so does your jewelry. So how would you show the correct price of your [products on a real-time basis](#)? The solution to this lies in web services. Your software would demand the price of gold from other software every hour, let's say a market index which updates gold prices instantly. Your software would then calculate the price of products based on the updated price. Then the consumers can book the products at the current price only to be picked up later from your store. Thus, ***a web service is simply a means of communication amongst software spread across the internet.*** There are obvious other jargons involved, such as XML, internet protocols, WSDL, SOAP, etc., but don't worry. We will cover them all briefly throughout this asp.net web services article.

## Key Terminologies

- **XML – Extensible Markup Language.**

***Tags that contain only data.***

***Any application can format an XML into any desired format. XML is simply data inside tags.***

E.g.

```
<car>
<name>Gallardo</name>
<brand>Lamborghini</brand>
</car>
```

- **SOAP – Simple Object Access Protocol.**

***A protocol that defines how XML based messages will be sent and received across applications.***

- **WSDL – Web Services Description Language.**

*It describes the web services, their input expectations, their output descriptions and a summary of what a service can be used for.*

For e.g., there may be multiple services that provide the current rate of gold in multiple currencies and regions. So, a WSDL document summarizes all those services. Interestingly, **WSDL documents are also written in XML**.

- **UDDI – Universal Description, Discovery, and Integration.**

*An XML-based standard that governs the creation and distribution of web services.*

## **Web Services Features-**

### **1. Language Independent**

Web services are independent of any programming language. A web service [that is coded in Java](#) can be consumed by any [ASP.Net application](#) as long as both exchange data in XML formats.

### **2. Protocol Independent**

Web services can be exchanged over the internet via various protocols. **HTTP** and **UDP** are two widely used ones.

3. **Platform Independent:** web services can be consumed in any platform or operating system.

4. **Self-Descriptive:** Through WSDLs, each web service can explain itself clearly.

5. **Discoverable:** Registrations through UDDI and unique URLs ensure that each web service across the globe is easily discoverable.

## **Demo-**

```
using System;  
using System.Collections.Generic;  
using System.Linq;  
using System.Web;  
using System.Web.Services;  
  
Web_Service_File
```

```

[WebService(Namespace = "http://tempuri.org/")]
[WebServiceBinding(ConformsTo = WsiProfiles.BasicProfile1_1)]
public class WebService : System.Web.Services.WebService
{
    public WebService()
    {
        //Uncomment the following line if using designed components
        //InitializeComponent();
    }

    [WebMethod]

    public int ADD(int a,int b)
    {
        return a + b;
    }

    [WebMethod]

    public int SUB(int a, int b)
    {
        return a - b;
    }
}

```

```

<form id="form1" runat="server">
<div>
<h2>Enter First Number</h2>
<asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
<h2>Enter Second Number</h2>
<asp:TextBox ID="TextBox2" runat="server"></asp:TextBox>
<h2>Result</h2>
<asp:TextBox ID="TextBox3" runat="server"></asp:TextBox>
<br />
<br />
<br />
<asp:Button ID="Button1" runat="server" Text="ADD" Height="59px"
OnClick="Button1_Click" Width="84px" />
<asp:Button ID="Button2" runat="server" Text="SUB" Height="53px"
OnClick="Button2_Click" Width="74px" />

```

```
using System.Web.UI.WebControls;

public partial class _Default : System.Web.UI.Page
{
    WebService WB = new WebService();
    protected void Page_Load(object sender, EventArgs e)
    {
    }
    protected void Button1_Click(object sender, EventArgs e)
    {
        int x = Convert.ToInt32(TextBox1.Text);
        int y = Convert.ToInt32(TextBox2.Text);
        int rs = WB.ADD(x, y);
        TextBox3.Text = rs.ToString();
    }
    protected void Button2_Click(object sender, EventArgs e)
    {
        int x = Convert.ToInt32(TextBox1.Text);
        int y = Convert.ToInt32(TextBox2.Text);
        int rs = WB.SUB(x, y);
        TextBox3.Text = rs.ToString();
    }
}
```