

## Practical No 7

**Aim:** Implement typical service using WCF

### Theory:

WCF stands for Windows Communication Foundation. It is a framework for building, configuring, and deploying network-distributed services. Earlier known as Indigo, it enables hosting services in any type of operating system process.

### Difference between WCF and Web service

WCF	Web Service
ServiceContract and OperationContract attributes are used for defining WCF service.	WebService and WebMethod attributes are used for defining web service.
Supports various protocols like HTTP, HTTPS, TCP, Named Pipes and MSMQ.	Supports only HTTP, HTTPS protocols.
Hosted in IIS, WAS (Windows Activation Service), Self-hosting, Windows Service.	Hosted only in IIS.
Supports security, reliable messaging, transaction and AJAX and REST supports.	Support security but is less secure as compared to WCF.
Supports DataContract serializer by using System.Runtime.Serialization.	Supports XML serializer by using System.Xml.Serialization.
Supports One-Way, Request-Response and Duplex service operations.	Supports One-Way and Request-Response service operations
WCF are faster than Web Services.	Web Services are slower than WCF
Hash Table can be serialized.	Hash Table cannot be serialized. It can serializes only those collections which implement IEnumerable and ICollection.
Unhandled Exceptions does not return to the client as SOAP faults. WCF supports better exception handling by using FaultContract.	Unhandled Exceptions returns to the client as SOAP faults.
Supports XML, MTOM, Binary message encoding	Supports XML and MTOM (Message Transmission Optimization Mechanism) message encoding.
Supports multi-threading by using ServiceBehaviour class.	Doesn't support multi-threading.

### Steps:

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.
- 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);
```

- 9. Now open arithmeticOperation.svc** page

- 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.**

## Source code:

### Service1.cs:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Runtime.Serialization;
using System.ServiceModel;
using System.Text;

namespace MywcfService
{
    // NOTE: You can use the "Rename" command on the "Refactor" menu to change the
    // interface name "IService1" in both code and config file together.
    [ServiceContract]
    public interface IService1
    {
        [OperationContract]
        double Sum(double a, double b);
    }
}
```

### Service1.svc

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Runtime.Serialization;
using System.ServiceModel;
using System.Text;

namespace MywcfService
{
    // NOTE: You can use the "Rename" command on the "Refactor" menu to change the
    // class name "Service1" in code, svc and config file together.
    // NOTE: In order to launch WCF Test Client for testing this service, please
    // select Service1.svc or Service1.svc.cs at the Solution Explorer and start debugging.
    public class Service1 : IService1
    {
        public double Sum(double a, double b)
        {
            double result = a + b; return result;
        }
    }
}
```

```
}  
}
```

## Output:

