

## Windows Communication Foundation (WCF)-Windows Form Application

### Program:

Step 1: Create a WCF Service Library

```
using System.ServiceModel;
```

```
[ServiceContract]
public interface ISimpleInterestService
{
    [OperationContract]
    double CalculateSimpleInterest(double principal, double rate, int time);
}
```

Implement the service contract in a class

```
public class SimpleInterestService : ISimpleInterestService
{
    public double CalculateSimpleInterest(double principal, double rate, int time)
    {
        // Calculate simple interest
        double interest = (principal * rate * time) / 100;
        return interest;
    }
}
```

Step 2: Create a Windows Forms Application for Hosting

```
using System;
using System.Windows.Forms;
using System.ServiceModel;

namespace SimpleInterestHost
{
    public partial class MainForm : Form
    {
        ServiceHost host;
```

```

    public MainForm()
    {
        InitializeComponent();
    }

    private void MainForm_Load(object sender, EventArgs e)
    {
        // Create a ServiceHost to host the SimpleInterestService
        host = new ServiceHost(typeof(SimpleInterestService));

        // Open the ServiceHost
        host.Open();

        // Display a message indicating that the service is running
        MessageBox.Show("Simple Interest Service is running...");
    }

    private void MainForm_FormClosed(object sender, FormClosedEventArgs e)
    {
        // Close the ServiceHost when the form is closed
        if (host.State == CommunicationState.Opened)
            host.Close();
    }
}

```

### Step 3: Create a Client Windows Forms Application

```

using System;
using System.Windows.Forms;

namespace SimpleInterestClient
{
    public partial class MainForm : Form
    {
        public MainForm()
        {
            InitializeComponent();
        }
    }
}

```

```

    }

    private void calculateButton_Click(object sender, EventArgs e)
    {
        // Create a client to access the SimpleInterestService
        var client = new SimpleInterestServiceReference.SimpleInterestServiceClient();

        // Get input values from the user
        double principal = Convert.ToDouble(principalTextBox.Text);
        double rate = Convert.ToDouble(rateTextBox.Text);
        int time = Convert.ToInt32(timeTextBox.Text);

        // Call the CalculateSimpleInterest method
        double interest = client.CalculateSimpleInterest(principal, rate, time);

        // Display the result
        resultLabel.Text = $"Simple Interest: {interest:C}";
    }
}

```