

SERIALIZATION and DESERIALIZATION IN C#

What is Serialization?

Serialization is the process of converting an object into a form that can be readily transported. For example, you can serialize an object and transport it over the Internet using HTTP between a client and a server. On the other end, deserialization reconstructs the object from the stream.

Xml and Soap serialization

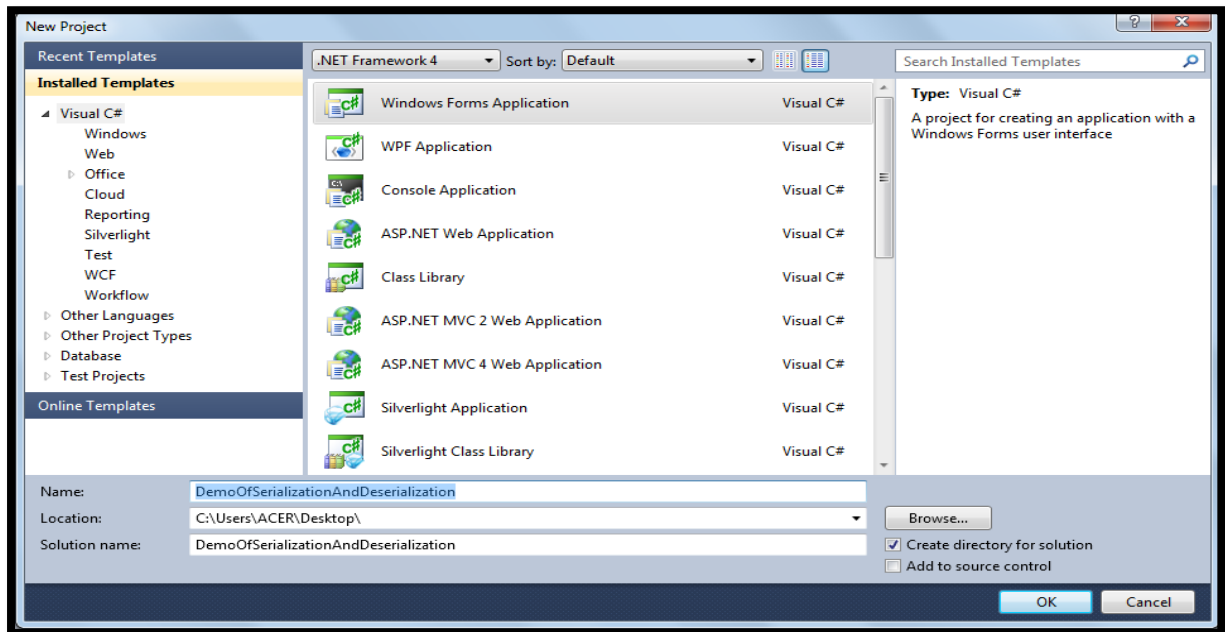
XML serialization converts (serializes) the public fields and properties of an object, or the parameters and return values of methods, into an XML stream that conforms to a specific XML Schema definition language (XSD) document. XML serialization results in strongly typed classes with public properties and fields that are converted to a serial format (in this case, XML) for storage or transport.

Because XML is an open standard, the XML stream can be processed by any application, as needed, regardless of platform. For example, XML Web services created using ASP.NET use the XmlSerializer class to create XML streams that pass data between XML Web service applications throughout the Internet or on intranets. Conversely, deserialization takes such an XML stream and reconstructs the object.

XML serialization can also be used to serialize objects into XML streams that conform to the SOAP specification. SOAP is a protocol based on XML, designed specifically to transport procedure calls using XML.

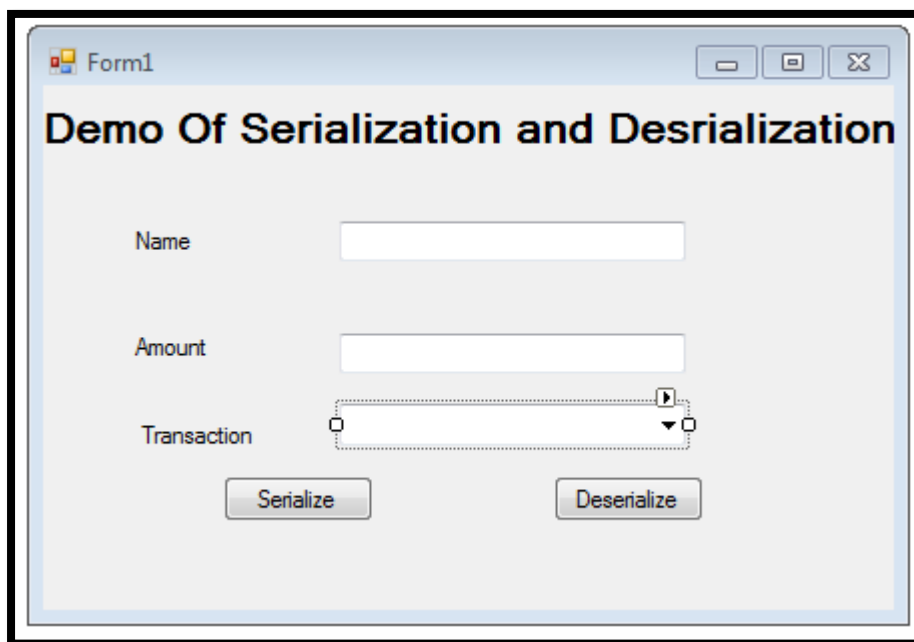
How to serialize an Object in Xml format?

Step :1 Create new windows form application and name it as **DemoOfSerializationAndDeserialization** as shown in the following picture.

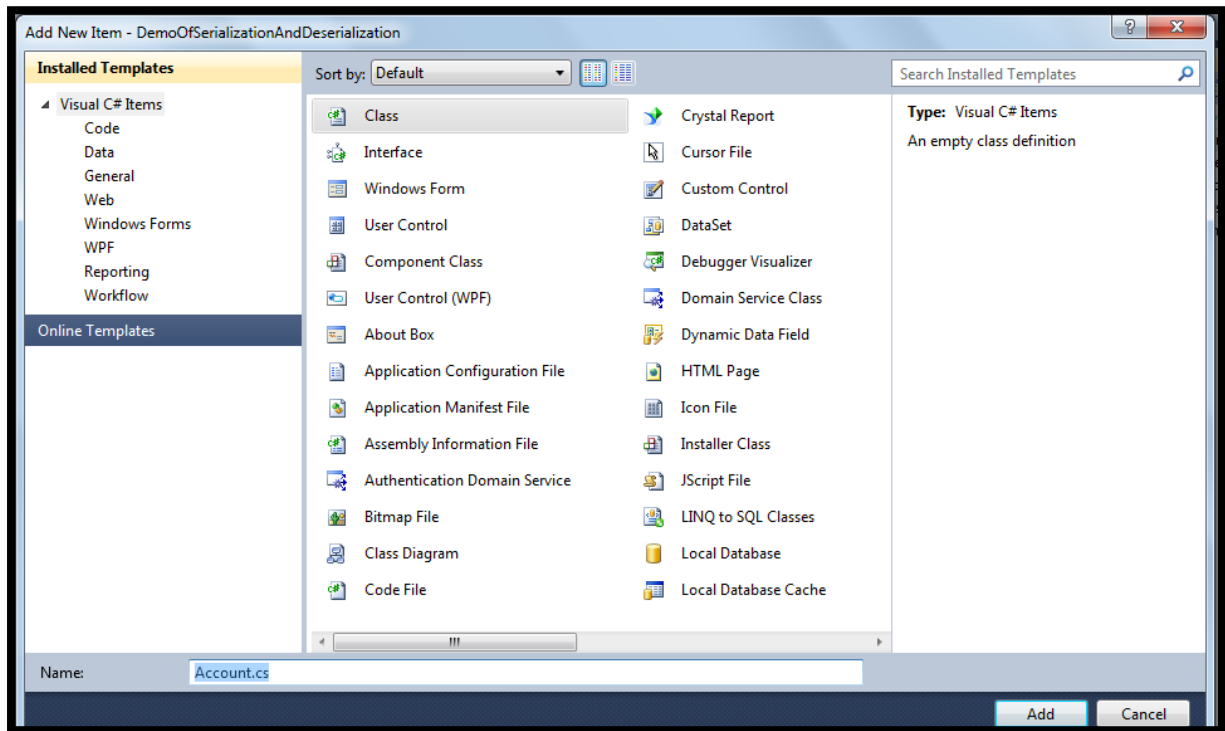


Click OK button.

Step: 2 Design your form as shown below



Step :3 Now here we need to add one class. So right click on project in solution explorer→Click on Add→Click on class→and name it as **Account.cs** as shown below



Click on **Add** button.

Step : 4 Add following code in Account.cs file

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace DemoOfSerializationAndDeserialization
{
    [Serializable]
    public class Account
    {
        private string _name;
        private double _balance;
        public Account(string name, double balance)
        {
            _name = name;
            _balance = balance;
        }
        public void Deposit(double amt)
        {
            _balance = _balance + amt;
        }
        public void withdraw(double amt)
        {
            _balance = _balance - amt;
        }
        public string Name
        {
            get
            {
                return _name;
            }
        }
    }
}
```

```

    }
    public double Balance
    {
        get
        {
            return _balance;
        }
    }
}

```

In the above code we created two properties name and balance and along with that we have created to method Deposit and Withdraw. When customer deposit the amount balance will increase and when he withdrew amount balance will decrease.

Step : 4 Add two namespace in Form.cs file

```
using System.IO;
```

```
using System.Runtime.Serialization.Formatters.Soap;
```

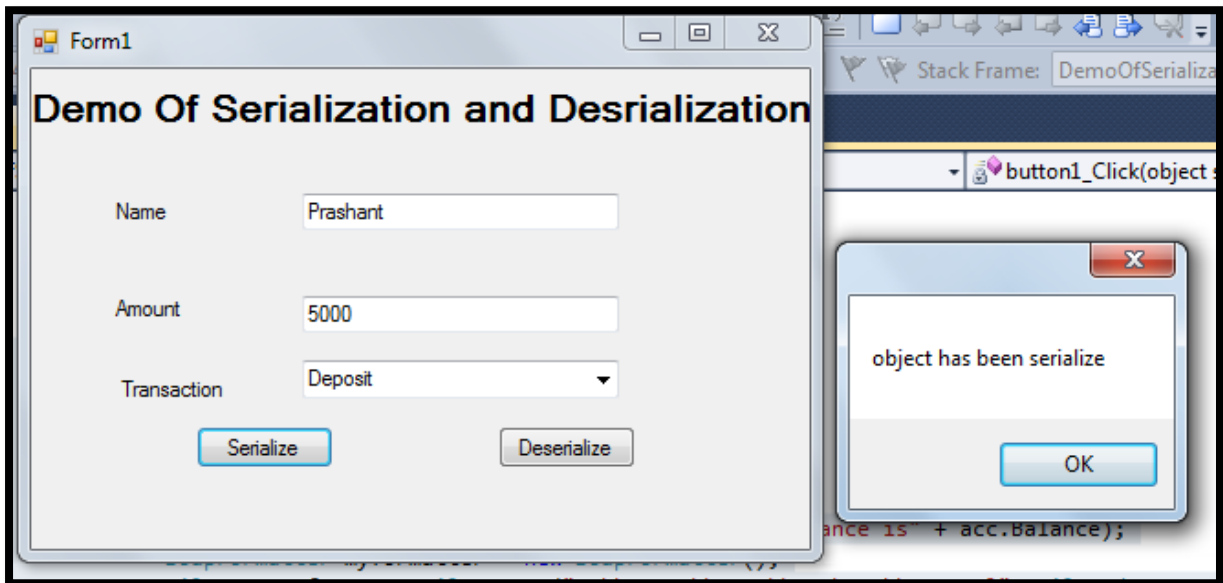
On click event of serialize button write down the following code.

```

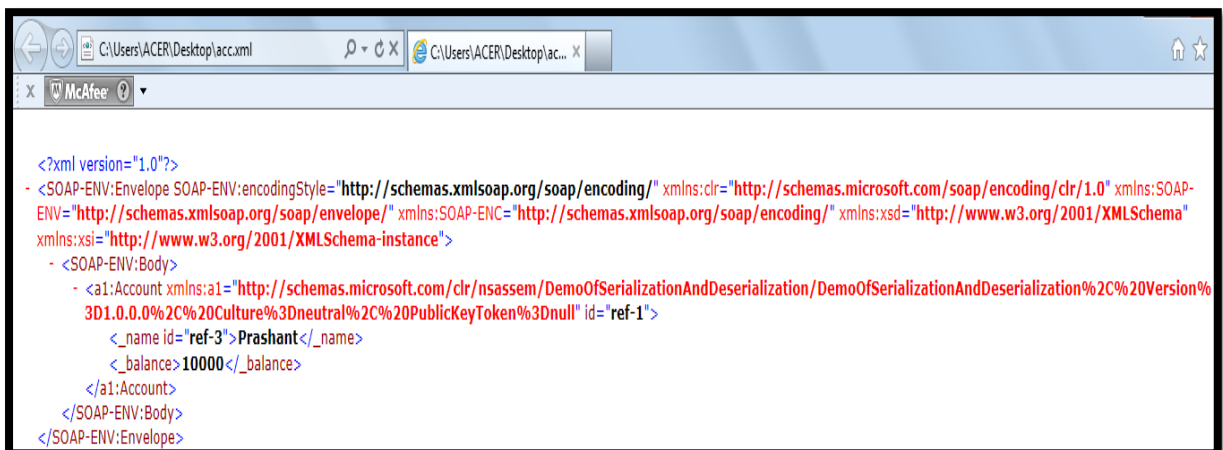
private void button1_Click(object sender, EventArgs e)
{
    if (comboBox1.SelectedItem.ToString() == "Deposit")
    {
        int Amount = Convert.ToInt32(textBox2.Text);
        Account acc = new Account(textBox1.Text, Amount);
        acc.Deposit(Amount);
        MessageBox.Show("current Name is" + acc.Name + "balance is" +
acc.Balance);
        SoapFormatter myformatter = new SoapFormatter();
        FileStream fs = new FileStream("C:\\Users\\ACER\\Desktop\\acc.xml",
 FileMode.Create, FileAccess.Write);
        myformatter.Serialize(fs, acc);
        MessageBox.Show("object has been serialize");
    }
    else
    {
        int Amount = Convert.ToInt32(textBox2.Text);
        Account acc = new Account(textBox1.Text, Amount);
        acc.withdraw(Amount);
        MessageBox.Show("current Name is" + acc.Name + "balance is" +
acc.Balance);
        SoapFormatter myformatter = new SoapFormatter();
        FileStream fs = new FileStream("C:\\Users\\ACER\\Desktop\\acc.xml",
 FileMode.Create, FileAccess.Write);
        myformatter.Serialize(fs, acc);
        MessageBox.Show("object has been serialize");
    }
}
}

```

Step :5 Press f5 to run your project . Provide necessary information in form and press Serialize button. If everything goes fine , you will get MessageBox displaying "object has been serialize" As shown below



Step: 6 Go to mention location of file. In my case it is Desktop. You will get ACC.xml file is created. Open Acc.xml file , you will see the information stored in xmlsoap format as shown below

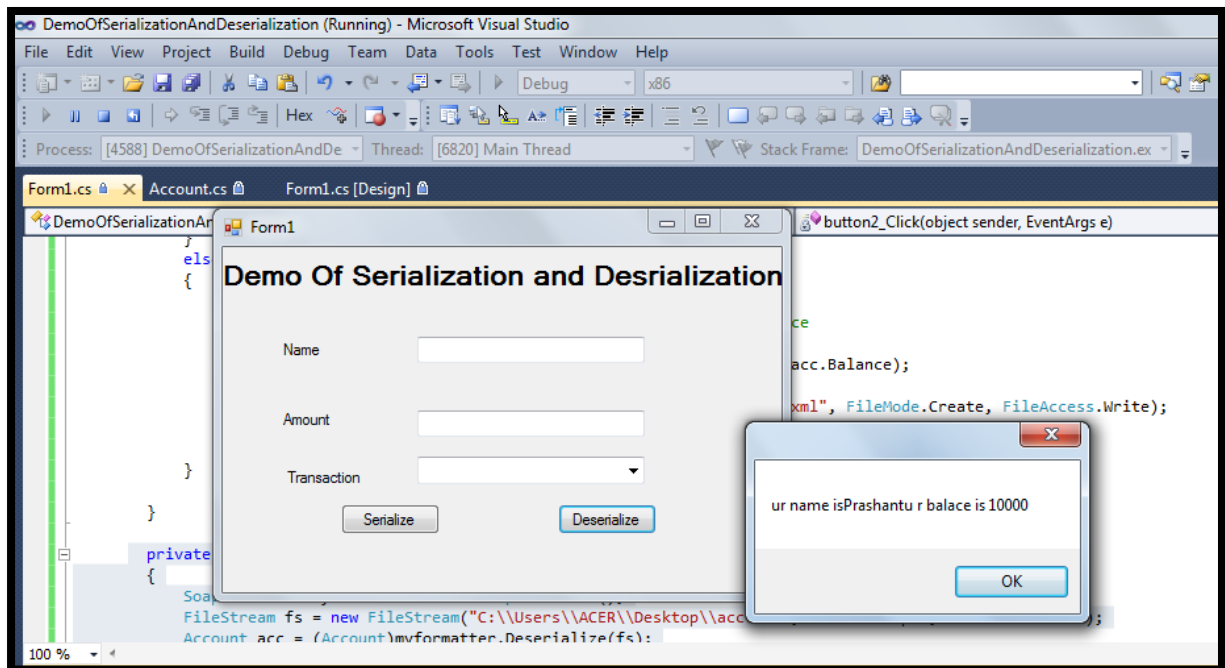


Step:7 For de-serializing object on click event of **deserialize** button write down the following code

```
private void button2_Click(object sender, EventArgs e)
{
    SoapFormatter myformatter = new SoapFormatter();
    FileStream fs = new FileStream("C:\\Users\\ACER\\Desktop\\acc.xml",
    FileMode.Open, FileAccess.Read);
    Account acc = (Account)myformatter.Deserialize(fs);
    fs.Close();
    MessageBox.Show("ur name is" + acc.Name + "u r balace is " + acc.Balance);
}
```

}

Step :8 press f5 to run your project and click on deserialize button. You will get information from acc.xml serialized file as shown below



Ref: <http://msdn.microsoft.com/en-us/library/90c86ass.aspx>

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