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01 ChrisFirstProject

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace ChrisFirstProject
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            MessageBox.Show("Hello","Chris Paine!");
        }

        private void button1_MouseHover(object sender, EventArgs e)
        {
            MessageBox.Show("You are hovering");
        }
    }
}
```

04 Variables

```
namespace Variables

{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void Form1_Load(object sender, EventArgs e)
        {

        }

        private void button1_Click(object sender, EventArgs e)
        {
```

```
            string name = "Chris Paine";
            int number = 911;
            bool red = false;
            object myObject = true;

            //MessageBox.Show(name);
            //MessageBox.Show(number.ToString());
            //MessageBox.Show(red.ToString());
            MessageBox.Show(myObject.ToString());
        }
    }
}
```

05 property of object using code

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _05_property_of_object_using_code
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            button1.Text = "New Name";
            button1.Enabled = false;
            button1.Height = 60;
            textBox1.Text = "Chris Paine";
            textBox1.MaxLength = 2;
        }
    }
}
```

06 if statements

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
```

```
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _06_if_statements
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            if (textBox1.Text == "Chris") {
                    MessageBox.Show("Paine");
            }
            else if (textBox1.Text != "Paine")
            {
                MessageBox.Show("Chris");
            }
            else
            {
                MessageBox.Show("Who are you!!");
            }
        }
    }
}
```

07 More If

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _07_More_If
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //if (checkBox1.Checked == true) {
            if (checkBox1.Checked)
```

```
            {
                //if (!checkBox1.Checked) {
                MessageBox.Show("Check box checked");
            }
            bool mybool = true;
            if (mybool)
            {
                MessageBox.Show("True");
            }
            int a = 11;
            int b = 12;
            int c = 15;

            if (a < c)
            {
                MessageBox.Show("True");
            }
        }
    }
}
```

08 If more prt3

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _08_If_more_prt3
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //if (textBox1.Text == "Chris" && checkBox1.Checked == true) {
                    //MessageBox.Show("Checked Hello");
                //}

                //}
                if (textBox1.Text == "Chris" || checkBox1.Checked == true) {
                    MessageBox.Show("Checked Hello");
                }

                 }
        }
}
```

09 Switch Statement

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _09_Switch_Statement
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            switch (textBox1.Text) {
                case "Chris":
                    MessageBox.Show("Paine");
                    break;
                case "Paine":
                    MessageBox.Show("Chris");
                    break;
                default:
                    MessageBox.Show("Your name is not entered");
                    break;

            }
        }
    }
}
```

10 Math operators

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _10_Math_operators
{
    public partial class Form1 : Form
    {
        public Form1()
```

```
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            int a = 5;
            int b = 3;

            MessageBox.Show((a+b).ToString());
            MessageBox.Show((a * b).ToString());
            MessageBox.Show((a / b).ToString());
            MessageBox.Show((a++).ToString());
            MessageBox.Show((--a).ToString());
        }
    }
}
```

11 Arrays

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _11_Arrays
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            string[] names = {"Chris","Paine","Dresden","Maine"};
            MessageBox.Show(names[0]);

            int[] numbers = {1,2,3,4,5,6 };
            MessageBox.Show(numbers[3].ToString());
        }
    }
}
```

12 Lists

```
using System;
```

```
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _12_Lists
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //list similar to array
            string[] myarray = new string[4]; //sample array specify total elements

            List<string> names = new List<string>(); //list don't need to specify
elements
            names.Add("Chris");
            names.Add("Paine");
            MessageBox.Show(names[0]);
            MessageBox.Show(names[1]);

            List<int> numbers = new List<int>();
            numbers.Add(100);
            numbers.Add(200);

            MessageBox.Show(numbers[1].ToString());
        }
    }
}
```

13 For and foreach loop

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _13_For_and_foreach_loop
{
    public partial class Form1 : Form
    {
        public Form1()
```

```
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //for (int inc = 0;; inc++) infinite loop
            for (int inc = 0; inc <= 2; inc++) {
                MessageBox.Show("Hello " + inc.ToString());

                string[] names = {"Chris","Paine","Dresden" };
                foreach (string s in names) {//loops thru each of the elements
                    MessageBox.Show(s);

                    List<int> numbers = new List<int>();
                    numbers.Add(5);
                    numbers.Add(10);
                    numbers.Add(15);

                    foreach(int i in numbers){
                        MessageBox.Show(i.ToString());
                    }
                }
            }
        }
    }
}
```

14 do and do while

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _14_do_and_do_while
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            int inc = 0;
            while(inc < 10){//(true) infinite loop
                textBox1.Text += inc.ToString();
                inc++;
            }

            int k = 0;
            do{
                textBox1.Text += k.ToString();
```

```
                k++;
            } while (k < 10);//(something static like true) = (true) infinate loop
        }
    }
}
```

15 try catch and finally

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _15_try_catch_and_finally
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //instead of application crashing
            try {
                string[] names = new string[2];
                string s = names[2];
            }
            catch (Exception ex) {
                MessageBox.Show("Custom message");
                MessageBox.Show(ex.Message);
            }
            finally {
                MessageBox.Show("Your code is done!");//do this last
            }
        }
    }
}
```

16 Methods pt 1

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
```

```
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _16_Methods_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            Message("Button1","Title");
        }
        void Message(string message, string title) {
            MessageBox.Show(message, title);
        }

        private void button2_Click(object sender, EventArgs e)
        {
            Message("Button2","Title2");
        }
    }
}
```

17 Method pt2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _17_Method_pt2
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            MessageBox.Show(myMethod("Chris"));//method repersents a string.
            MessageBox.Show(math(12,12).ToString());
        }
        int math(int x,int y){
            return x*y;
        }
```

```
        string myMethod(string name) {

            return name;
        }
    }
}
```

18 continue and break

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _18_continue_and_break
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
               //can use breakpoint to the left and F11 to step thru code.
            for (int inc = 0; inc <= 10; inc++ ) {
                if (inc == 5) { break; }
                if (inc == 2) { continue; }
                textBox1.Text += inc.ToString();
            }
        }
    }
}
```

19 Overview of Namespaces and classes

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;  //system, inside windows, inside forms are all namespace.
using myNamespace;  //to access your defined namespace.

namespace _19_Overview_of_Namespaces_and_classes
{
    public partial class Form1 : Form
    {
        public Form1()
```

```
        {
            InitializeComponent();
        }

        private void Form1_Load(object sender, EventArgs e)
        {
            //System.Windows.Forms.MessageBox.Show if you didn't using
System.Windows.Forms above.
            //Have to type out all.
        }
    }
}
```

myClass.cs

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

namespace myNamespace
    //organize structs and classes and interfaces.
{
    namespace mySubNamespace //sub namespace inside of myNamespace.
    {

    }
    class myClass  //used to organize method and variables. Notice myClass is not in
namespaces.
    {
    }
}
```

20 Constructors

```
using System;

using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using myNamespace;

namespace _20_Constructors
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
```

```
            myClass mc = new myClass("Chris");
        }
    }
}
```

myClass.cs

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

namespace myNamespace
{
    class myClass{
        string Name;
        public myClass(string name) //ctor tab twice auto constructor
        {
            //when create new class calls this method.
            Name = name;
        }
        //compiler will now which to choose base on var passed.
        public myClass(bool variable)// can have more then one constructors.
        {

        }
    }
}
```

21 Access modifiers and static

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using myNamespace;

namespace _21_Access_modifiers_and_static
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            string name = "Chris";
            myClass mc = new myClass(name);
            mc.name();//public
            mc.lastName(); //private can't access.
            //static don't need to create an instance of the class to access static.
            myClass.showMessage("Chris");
        }
```

```
    }
}
```

myClass.cs

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

namespace myNamespace
{
    class myClass
    {
        string Name;
        string lastNames;
        public myClass(string name)
        {
            Name = name;
        }
        public string name() {
            return Name;
        }

        private string lastName() {//default private access modifier.
            return lastNames;
        }

        public static void showMessage(string message){// static is modifier.
            System.Windows.Forms.MessageBox.Show(message);
        }
    }
}
```

22 Overloading Methods and Enumerators

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using myNamespace;

namespace _22_Overloading_Methods_and_Enumerators
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            myClass.ShowMessage(24);
```

```
        }
    }
}
```

myClass.cs

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

namespace myNamespace
{
    class myClass
    {
        enum names : byte{ //defaults to integer, now it is a byte array.
            Chris,
            Paine = 4,
            Dianne //will now equal 5
        }

        string Name;
        public myClass(string name)// constructor
        {
            Name = name;
        }

        string name() {
            return Name;
        }

        names myNames = names.Chris;// first element defaults to 0

        public static void ShowMessage(string message) {
            System.Windows.Forms.MessageBox.Show(message);
        }
        //public static void ShowMessage(string message) create error can't have method
with same parameters.
        //{
            //System.Windows.Forms.MessageBox.Show(message);
        //}

        public static void ShowMessage(int message)// overloaded as many times as you
want.
        {
            System.Windows.Forms.MessageBox.Show(message.ToString());//not using
namespace.
        }
    }
}
```

23 Creating your own properties

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
```

```
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using myNamespace;

namespace _23_Creating_your_own_properties
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            myClass mc = new myClass("Chris");
            MessageBox.Show(mc.Name);//properties with get and set.
        }
    }
}
```

myClass.cs

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

namespace myNamespace
{
    class myClass
    {
        string myString;
        public myClass(string name)// constructor
        {
            myString = name;
            Name = name;
        }

        public string Name
        {
            get{return myString} //now readonly
            private set; // user can only change value, set is accessor

            //value is keyword for info passed
            //set{
                //if(value=="") System.Windows.Forms.MessageBox("Checked value"):
            //}
        }

    }
}
```

24 Throwing an exceptions

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
```

```
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _24_Throwing_an_exceptions
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            try// try stops prog from crashing with the catch method.
            {
                myClass.CheckString("");
            }
            catch (Exception ex) { MessageBox.Show(ex.Message); }
        }
    }
}
```

myClass.cs

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

namespace _24_Throwing_an_exceptions
{
    class myClass
    {
        static Exception myException = new Exception("You can't do that!");
        public static void CheckString(string myString) {
            if (myString == ""){
                throw myException;//usually inside of class.
            }

        }
    }
}
```

25 Inheritance and Overloading

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using myNamespace;

namespace _25_Inheritance_and_Overloading
{
```

```
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            mySecondClass mc = new mySecondClass();
            MessageBox.Show(mc.age.ToString()); //member of myclass.
            MessageBox.Show(mc.hairColor);// member of second class.
            MessageBox.Show(mc.Name);//protected can't access.
        }
    }
}
```

myClass.cs

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

namespace myNamespace{
    class myClass{
        protected string Name = "Chris";// only inherit from public not private members.
        public int age = 45;
        public void display(string message) {
            System.Windows.Forms.MessageBox.Show(message);
        }
    }

    class mySecondClass : myClass{ //inherit all public members
        public string hairColor = "red";
        void MessageBoxSpecial(){
            System.Windows.Forms.MessageBox.Show(base.age.ToString());//use base to
access base class members
            base.display("hello");
        }
        public new string Name = "Paine";//will use this method to replace other class.
If you can't access the other class like dll.
        public override string Name = "Dianne"; //Same as above.
    }
}
```

26 More on inheritance and interface

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using MyNamespace;

namespace _26_More_on_inheritance_and_interface
{
```

```
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            mySecondClass mc = new mySecondClass();

            myThirdClass mtc = new myThirdClass();

            mtc.Test();// inherits from all classed as derived.

        }
    }
}
```

myClass.cs

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

namespace MyNamespace
{
    class myClass
    {
        private string name = "Chris";
        protected int age = 30;
        public virtual void showMessage(string message) {
            System.Windows.Forms.MessageBox.Show(message);
        }
    }

    class mySecondClass : myClass, ImyInterface {//can inherit from one base class.
        public string HairColor = "Brown";
        public override void showMessage(string message){
            System.Windows.Forms.MessageBox.Show(message, "My Title");
        }
        void myVoid() {
            base.showMessage("My void");
        }

        }
    class myThirdClass : mySecondClass {
        public string Test = "Dresden";
    }

    interface ImyInterface {//??
        void myVoid();//default public
        //can't define methods in interfaces.
    }
}
```

27 Indexers

```
using System;
```

```
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _27_Indexers
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            MyClass mc = new MyClass();
            MessageBox.Show(mc[0]);
        }
    }
}
```

myClass.cs

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

namespace _27_Indexers
{
    class MyClass
    {
        public string this[int index]{//indexer can use multi params with [int index,
string test]
            get{return paine[index];}
            set{paine[index] = value;}//delete to make readonly.
        }
        string[] paine = {"Chris","Dianne","Seth" };
    }
}
```

28 Structs

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using myNamespace;

namespace _28_Structs
{
```

```
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            Client Client1 = new Client();
            Client1.Name = "Chris";
            Client1.Age = 35;
            Client1.ClearClientInfo;

            Client Client2 = new Client();
            Client2.Name = "Dianne";
            Client2.Age = 36;
        }
    }
}
```

myClass.cs

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

namespace myNamespace
{
    struct Client {//can't inherit from class or structs.
        public Client(string name)//constructor in struct
        {
            Name = name;
            Age = 0;
        }

        public string Name;
        public int Age;
        public void ClearClientInfo() {//method in structs
            Name = "";
            Age = 0;
        }

    }
    interface Iinter{// can use structs and interfaces.
        public string Name;
    }
}
```

29 Partial

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
```

```
using System.Windows.Forms;

namespace _29_Partial
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            myClass mc = new myClass();
            //mc.BirthDay;//combines two classes.
            mc.showMessage("Chris");
        }
    }
}
```

myClass.cs

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

namespace myNamespace
{
    partial class myClass//
    {
        public string Name = "Chris";
        public int Age = 35;
        partial void message(string message);//no access modifer.
    }
}
```

myClass2.cs

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

namespace _29_Partial
{
    partial class myClass
    {
        public string Hair = "Brown";
        public int BirthDay = 22;
        partial void message(string message) {//used in both partial class.
            System.Windows.Forms.MessageBox.Show(message);
        }
        public void showMessage(string message) {
            message(message);
        }
    }
}
```

30 Abstract

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;



namespace myNameSpace
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //myClass mc = new myClass();//abstract blocks creation.
            //mc. prevent users from createing instance.

        }
    }
}
```

myClass.cs

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

namespace myNameSpace
{
    abstract class MyClass
    {
        public static string name = "Chris";
        public static int Age = 15;

        public static void Message(string message)
        {
            System.Windows.Forms.MessageBox.Show(message);
        }
        public abstract void ShowMessage(string message);
        //can't declare body.

    }

    class mySecondClass : MyClass//will auto type, can overide the abstract showmessage
    {
        public override void ShowMessage(string message)
```

```
        {
            System.Windows.Forms.MessageBox.Show(message);
        }
    }
}
```

31 Delegates

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using myNamespace;

namespace _31_Delegates
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            myClass mc = new myClass();
            mc.ShowThoseMessages();

        }
    }
}
```

myClass.cs

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

namespace myNamespace
{
    class myClass//useful to call multi methods.
    {
        delegate void myDelegate(string myString);

        public void ShowThoseMessages()
        {
            myDelegate md = new myDelegate(ShowMessage);//don't need paren, not calling
            md += showAnotherMessage;//adding to delegate.
            md("Chris");//will call methods in delagate, call multi methods.
        }

        void ShowMessage(string message)
        {
            System.Windows.Forms.MessageBox.Show(message);
```

```
        }

        void showAnotherMessage(string a) {
            System.Windows.Forms.MessageBox.Show("Test");
        }

        void showAnotherMessage(int a)//won't work data type wrong, or return type.
        {
            System.Windows.Forms.MessageBox.Show("Test");
        }
    }
}
```

32 Events

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _32_Events
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {//subscriber method void return , sender object , eventargs info, called
delegate
            myClass mc = new myClass();
            mc.onPropertyChanged += new EventHandler(mc_onPropertyChanged);
            //+= tab twice to create below
            mc.Name = "Chris";
        }
        //method will be called
        void mc_onPropertyChanged(object sender, EventArgs e)
        {
            MessageBox.Show("The property has changed");
        }
    }
}
```

myClass.cs

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

namespace _32_Events
{
    class myClass
```

```
    {
        public event EventHandler onPropertyChanged;//event raised when prop change.
        //event just special type of delegate.

        string name = "";
        public string Name {
            get { return name; }
            set { name = value;
            onPropertyChanged(this, new EventArgs());
            }
        }
    }
}
```

33 Ternay Operator

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _33_Ternay_Operator
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //string myString = "";
            //if (checkBox1.Checked) myString = "It's Checked";
            //else myString = "It's not checked";

            //ternary operator shorter
            string myString = (checkBox1.Checked) ? "It's Checked" :"It's not checked";
            MessageBox.Show(myString);

            //shorter still to one line code.
            //will cutdown on your readibility.
            MessageBox.Show((checkBox1.Checked) ? "It's Checked" : "It's not checked");



        }
    }
}
```

34 OpenFileDialogs

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _34_OpenFileDialogs
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void textBox1_TextChanged(object sender, EventArgs e)
        {

        }

        private void button1_Click(object sender, EventArgs e)
        {
            OpenFileDialog ofd = new OpenFileDialog();
            ofd.Filter = "PNG Image| *.png|BIK|*.bik";
            ofd.Title = "Open Image";//set properties

            if (ofd.ShowDialog() == System.Windows.Forms.DialogResult.OK) {
                MessageBox.Show(ofd.FileName);
                MessageBox.Show(ofd.SafeFileName);
            }
        }
    }
}
```

35 More Variable Types

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _35_More_Variable_Types
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            byte myByte = 255;//unsigned 0-255
            sbyte Mysbyte = -124;
```

```
            short myShort = 0;// ushort unsigned
            Int16 myInt16 = myShort;
            int myint = 32;
            Int32 = myint32 = myint;
            long mylong = 8;
            Int64 myInt64 = mylong;

            float myFloat = 224442.11F;//seven digits long
            double mydouble = .12344;

            char myChar = 'D';

        }
    }
}
```

36 StreamReader pt1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO; // for streamreader namespace is in.

// http://www.youtube.com/watch?v=--YPtMsg_6E

namespace _36_StreamReader_pt1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            OpenFileDialog ofd = new OpenFileDialog();//instance of openfile dialog.
            if (ofd.ShowDialog() == System.Windows.Forms.DialogResult.OK) {// test
condition

                StreamReader or = new
StreamReader(File.OpenRead(ofd.FileName));//instance of streamreader and path.

                //read from the beginning didn't spec where to start.
                textBox1.Text = or.ReadToEnd();//read from current of file to end.

                or.Dispose();//dispose of the stream reader(close file)good practice.

                //hex editor google hxd
            }
        }

        private void Form1_Load(object sender, EventArgs e)
        {

        }
```

```
    }
}
```

37 streamreader2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _37_streamreader2
{
    public partial class Form1 : Form    {
        public Form1()        { InitializeComponent(); }

        private void button1_Click(object sender, EventArgs e)        {
            OpenFileDialog ofd = new OpenFileDialog();
//instance of openfile dialog.
            if (ofd.ShowDialog() == System.Windows.Forms.DialogResult.OK)            {
// test condition

                StreamReader or = new StreamReader(File.OpenRead(ofd.FileName));
//instance of streamreader and path.
                or.BaseStream.Position = 4;
// set offset by checking hex editor lower left.  0x0c for C hex.
                textBox1.Text = or.BaseStream.ReadByte().ToString("x");
//keeps binary in hex display. read single bytes.
                byte[] buffer = new byte[3];
                or.BaseStream.Read(buffer, 0, 3);
//read three bytes to byte array

                //read from the beginning didn't spec where to start.
                foreach (byte myByte in buffer)
// loop thru all elements of array buffer.
                    textBox1.Text += myByte.ToString(" x ");

             or.Dispose();


            }
        }
    }
}
```

38 StreamReader pt3 Writing

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO; //for stream reader.
```

```
namespace _38_StreamReader_pt3_Writing{

    public partial class Form1 : Form{
        public Form1() {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e) {
            OpenFileDialog ofd = new OpenFileDialog();//instance of new openfile dialog.
            if (ofd.ShowDialog() == System.Windows.Forms.DialogResult.OK) {// test
condition
                StreamReader or = new
StreamReader(File.OpenRead(ofd.FileName));//instance of new streamreader of the file.

                char c = (char)or.Peek(); // read a character at a position.  Won't
change position. ()cast in char.
                char c1 = (char)or.Read(); //will change next character and advanced.
                char c2 = (char)or.Read(); //will change next character and advanced.

                MessageBox.Show(c.ToString() + ":" + c1.ToString() +":"+ c2.ToString());
                or.Dispose();

            }
        }
    }
}
```

39 StreamWriter pt1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _39_StreamWriter_pt1
{
    public partial class Form1 : Form
    {
        public Form1(){
            InitializeComponent();
            button2.Enabled = false;
        }
        string path;

        private void button1_Click(object sender, EventArgs e){

            OpenFileDialog ofd = new OpenFileDialog();//open dialog
            if (ofd.ShowDialog() == DialogResult.OK) {//check if clicked
                button2.Enabled = true;
                path = ofd.FileName;

            }
```

```
        }


        private void button2_Click_1(object sender, EventArgs e)
        {
            StreamWriter sw = new StreamWriter(File.Create(path));//openwrite instead
create to erase file.
            sw.Write(textBox1.Text);// write does not add new line after write.
            sw.WriteLine("second line of text");// increments new line after write.
            sw.Write("Chris"); // another line 3.
            sw.Dispose();

        }
    }
}
```

40 Stream Writer pt2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO; // for stream writer.

namespace _40_Stream_Writer_pt2{
    public partial class Form1 : Form{
        public Form1(){
            InitializeComponent();
        }

        //http://www.youtube.com/watch?v=uEcwwjB7Fg4

        string path;
        private void button1_Click(object sender, EventArgs e){
            OpenFileDialog ofd = new OpenFileDialog();
            if (ofd.ShowDialog() == DialogResult.OK) {
                button2.Enabled = true;
                path = ofd.FileName;
            }
        }

        private void button2_Click(object sender, EventArgs e){
            StreamWriter sw = new StreamWriter(File.OpenWrite(path));
            sw.BaseStream.Position = 0x1e;
            sw.BaseStream.WriteByte(0xff);//write bytes of code in hex 0x.

            //byte[] buffer = { 0x08, 0x09, 0x0A };//create byte array for writing multi
lines.
            //sw.BaseStream.Write(buffer,0,3);//(buffer array,offset,how many bytes in
array)

            sw.Dispose();
        }

    }
```

```
}
```

41 Binary Reader prt1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _41_Binary_Reader_prt1{
    public partial class Form1 : Form    {
        public Form1()        {
            InitializeComponent();
        }
        string path;
        private void button1_Click(object sender, EventArgs e)        {
            OpenFileDialog ofd = new OpenFileDialog();
            if (ofd.ShowDialog() == DialogResult.OK){
                button2.Enabled = true;
                path = ofd.FileName;
            }

        }

        private void button2_Click(object sender, EventArgs e)        {
            BinaryReader br = new BinaryReader(File.OpenRead(path));
            br.BaseStream.Position = 0x10;// in hex
            textBox1.Text = br.ReadChar().ToString();//read first character single

            //multi binary from above position
            foreach (char myChar in br.ReadChars(4)) textBox1.Text += myChar;
            br.Dispose();

            textBox1.Text = br.ReadInt16().ToString("x");//reads right to left little
Indian byte order
        }


    }
}
```

42 Binary Reader prt2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
```

```
using System.IO;


namespace _42_Binary_Reader_prt2{
    public partial class Form1 : Form {
        public Form1(){ InitializeComponent();}

        string path;
        private void button1_Click(object sender, EventArgs e)  {
            OpenFileDialog ofd = new OpenFileDialog();
            if (ofd.ShowDialog() == DialogResult.OK){
                button2.Enabled = true;
                path = ofd.FileName;
            }
        }

        private void button2_Click(object sender, EventArgs e)  {
            BinaryReader br = new BinaryReader(File.OpenRead(path));
            br.BaseStream.Position = 0x1E;// set read position
            byte[] buffer = br.ReadBytes(2);//Read the wrong order 00 01 = 10 00
            Array.Reverse(buffer); // reverse array to
            textBox1.Text = BitConverter.ToInt16(buffer, 0).ToString("x");//bitconvert to
toint16, 32 four bytes use toInt32, ("x") = shows hex, .ToString() = decimal entire
number.
            //bitconverter useful = turn a number into byte array.
            br.Dispose();
        }
    }
}
```

43 Binary Writer

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;//binarywriter class

namespace _43_Binary_Writer{
    public partial class Form1 : Form    {
        public Form1()       {           InitializeComponent();  }

        string path;
        private void button1_Click(object sender, EventArgs e)       {
            OpenFileDialog ofd = new OpenFileDialog();
            if (ofd.ShowDialog() == DialogResult.OK) {
                button2.Enabled = true;
                path = ofd.FileName;
            }
        }

        private void button2_Click(object sender, EventArgs e)       {
            BinaryWriter bw = new BinaryWriter(File.OpenWrite(path));
```

```
            short myshort = 1;
            byte[] buffer = BitConverter.GetBytes(myshort);
            Array.Reverse(buffer);//convert bytes in the wrong directions
            bw.Write('C');//write just a character.
            bw.Write(1);//write in wrong direction like before.
            bw.Dispose();
        }
    }
}
```

44 SaveFileDialog

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _44_SaveFileDialog{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            SaveFileDialog sfd = new SaveFileDialog();
            sfd.Filter = "Text File|*.txt";//default type
            sfd.FileName = "MyTextFile";// default name
            sfd.Title = "Save Title"; // title name
            if (sfd.ShowDialog() == DialogResult.OK){

                string path = sfd.FileName;
                BinaryWriter bw = new BinaryWriter(File.Create(path));
                bw.Write("This is a test");
                bw.Dispose();
            }


        }
    }
}
```

45 Convert Class

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
```

```
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _45_Convert_Class
{
    public partial class MyVersion : Form    {
        public MyVersion()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            //textbox generaly string type, type cast to int.
            //convert class is static.
            try// good practice
            {
                //heavily overloaded convert class
                int myInt = Convert.ToInt32(textBox1.Text);// can treat as a numer + 2 or
* 2
                MessageBox.Show(myInt.ToString());

                char myChar = Convert.ToChar(textBox2.Text);
                MessageBox.Show(myChar.ToString());

                bool myBool = Convert.ToBoolean(textBox3.Text);
                MessageBox.Show(myBool.ToString());
            }
            catch { MessageBox.Show("Conversion Failed"); }
            }

        private void label1_Click(object sender, EventArgs e)
        {

        }


    }
}
```

46 repeat of 45 Convert Class

47 is as and casting

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _47_is_as_and_casting{
    public partial class Form1 : Form    {
```

```
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            object myObj = "Chris";
            //string myString = myObj as string;
            if (myObj is string) { MessageBox.Show((string)myObj); }


            Control myControl = button1;
            if (myControl is Button) {//using is keyword to test
                Button myButton = (Button)myControl;
                //Button myButton = myControl as Button;//same as above
            }
        }
    }
}
```

48 repeat of 45 Convert Class

49 Substrings

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
//no using strings;

namespace _49_Substrings{
    public partial class Form1 : Form    {        public Form1()        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)        {
            string name = "John Smith";
            string Firstname = name.Substring(0, 4);
            MessageBox.Show(Firstname);
            string Lastname = name.Substring(5, 5);
            MessageBox.Show(Lastname);

        }
    }
}
```

50 IndexOf and Trim

```
using System;
using System.Collections.Generic;
```

```
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _50_IndexOf_and_Trim{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            string name = "John Smith";
            string FirstName = name.Substring(0, name.IndexOf(' '));//space index
            MessageBox.Show(FirstName);
            string LastName = name.Substring(name.IndexOf(' ') + 1);//only need one index
value
            MessageBox.Show(LastName);

            string calendar = "   12/12/12   ";
            string fixcalendar = calendar.Trim();//all space start and end
            string fixcalendar2 = calendar.TrimStart();// start trim only
            string fixcalendar3 = calendar.TrimEnd();// end trim only
            MessageBox.Show(fixcalendar);
        }
    }
}
```

51 Remove and Replace

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _51_Remove_and_Replace{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            string sentence = "Hello, my name is Chris";
            string after = sentence.Remove(0, 7);
            MessageBox.Show(after);

            string after2 = sentence.Remove(18);
            MessageBox.Show(after2);

            string after3 = sentence.Replace("Hello", "Hi");
            MessageBox.Show(after3);

            string after4 = sentence.Replace('a','i');
            MessageBox.Show(after4);
        }
    }
```

```
}
```

52 Math Class

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _52_Math_Class
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            label1.Text = Math.Abs(-4).ToString();
            label1.Text = Math.PI.ToString();
            label1.Text = Math.Pow(4,2).ToString();
            label1.Text = Math.Round(4.522,2).ToString();
        }
    }
}
```

53 Split and to CharArray

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _52_Split_and_to_CharArray{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            string name = "Chris;Dianne;Justin;Alica;Seth;Shadow";
            string[] nameArray = name.Split(';');//string array base on delineated values
            foreach(string names in nameArray)
                MessageBox.Show(names);
```

```
            string _letters = "abcdefg";
            char[] letters = _letters.ToCharArray();
            foreach(char lets in letters)
                MessageBox.Show(lets.ToString());//need to cast as string not char
        }
    }
}
```

54 Generating Random Numbers

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _54_Generating_Random_Numbers
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            Random r = new Random();
            MessageBox.Show(r.Next().ToString() );

            MessageBox.Show(r.Next(0,100).ToString());

            byte[] buffer = new byte[5];
            Random rx = new Random();
            r.NextBytes(buffer);//fill byte array with random bytes
            MessageBox.Show(BitConverter.ToString(buffer));

            MessageBox.Show(rx.NextDouble().ToString());//random double
        }
    }
}
```

55 Generating Random String

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
```

```
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _55_Generating_Random_String
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            char[] letters = "abcdefghijklmnopqrstuvwxyz".ToCharArray();
            Random r = new Random();
            MessageBox.Show(letters[r.Next(0,25)].ToString());//gen random number index
char array
            string rand = "";
            for (int i = 0; i < 10; i++) {
                rand += letters[r.Next(0,25)].ToString();
                MessageBox.Show(rand);
            }
        }
    }
}
```

56 Folder Browser Dialog

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _56_Folder_Browser_Dialog
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            FolderBrowserDialog fbd = new FolderBrowserDialog();
            fbd.RootFolder = Environment.SpecialFolder.ProgramFiles;//default path
            if(fbd.ShowDialog() == System.Windows.Forms.DialogResult.OK){
                MessageBox.Show(fbd.SelectedPath);
            }
        }
```

```
        private void button2_Click(object sender, EventArgs e)
        {
            FolderBrowserDialog fbd = new FolderBrowserDialog();
            fbd.RootFolder = Environment.SpecialFolder.MyDocuments;
            if (fbd.ShowDialog() == System.Windows.Forms.DialogResult.OK)
            {
                MessageBox.Show(fbd.SelectedPath);
            }
        }
    }
}
```

57 Directory Class prt1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _57_Directory_Class_prt1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            FolderBrowserDialog fbd = new FolderBrowserDialog();
            if(fbd.ShowDialog() == DialogResult.OK){
                string[] files = Directory.GetFiles(fbd.SelectedPath);
                foreach(string f in files)
                    MessageBox.Show(f);

                string[] dir = Directory.GetDirectories(fbd.SelectedPath);
                foreach (string d in dir)
                    MessageBox.Show(d);

                string[] drives = Directory.GetLogicalDrives();
                foreach(string d in drives)
                    MessageBox.Show(d);
            }
        }
    }
}
```

58 Directory Class prt2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _58_Directory_Class_prt2{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            FolderBrowserDialog fbd = new FolderBrowserDialog();
            if(fbd.ShowDialog() == DialogResult.OK){
                MessageBox.Show(Directory.GetCreationTime(fbd.SelectedPath).ToString());

MessageBox.Show(Directory.GetLastAccessTime(fbd.SelectedPath).ToString());
                MessageBox.Show(Directory.GetLastWriteTime(fbd.SelectedPath).ToString());
                MessageBox.Show(Directory.GetParent(fbd.SelectedPath).ToString());
            }


        }
    }
}
```

59 - Directory Class pt3

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _59___Directory_Class_pt3{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            FolderBrowserDialog fbd = new FolderBrowserDialog();
            if(fbd.ShowDialog() == DialogResult.OK){
                Directory.CreateDirectory(fbd.SelectedPath + "\\Chris");//creates folder
where user picks.
                Directory.Move(fbd.SelectedPath,
"C:\\users\\cpaine\\Desktop\\Paine");//move folder to destination
                Directory.Delete(fbd.SelectedPath);
            }
        }
    }
```

```
}
```

60 - File Class pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _60___File_Class_pt_1{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            OpenFileDialog ofd = new OpenFileDialog();
            if(ofd.ShowDialog() == DialogResult.OK){
                MessageBox.Show(File.Exists(ofd.FileName).ToString());
                //
MessageBox.Show(File.Exists("C:\\users\\cpaine\\desktop\\Chris.text").ToString());
                File.Delete(ofd.FileName);
            }

        }
    }
}
```

61 - File Class pt 2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _61___File_Class_pt_2{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            OpenFileDialog ofd = new OpenFileDialog();
            if(ofd.ShowDialog()==DialogResult.OK){
                File.Copy(ofd.FileName, "C:\\temp\\renameFile.txt");
                File.Move(ofd.FileName, "C:\\temp\\renameFile.txt");
```

```
            }
        }
    }
}
```

62 - Path Class

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.IO;

namespace _62___Path_Class{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
            OpenFileDialog ofd = new OpenFileDialog();
            if(ofd.ShowDialog()==DialogResult.OK){
                MessageBox.Show(Path.GetDirectoryName(ofd.FileName));
                MessageBox.Show(Path.GetExtension(ofd.FileName));
                MessageBox.Show(Path.GetFileName(ofd.FileName));
                MessageBox.Show(Path.GetFileNameWithoutExtension(ofd.FileName));
                MessageBox.Show(Path.GetFullPath(ofd.FileName));
                MessageBox.Show(Path.HasExtension(ofd.FileName).ToString());

            }
        }
    }
}
```

63 - Process Class pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Diagnostics;

namespace _63___Process_Class_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
```

```
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            OpenFileDialog ofd = new OpenFileDialog();
            if (ofd.ShowDialog()==DialogResult.OK){
                //Process.Start(ofd.FileName);start file clicked

                Process.Start("Notepad.exe");//should not be in the ofd block. no path it
in system 32.

                Process.Start("cmd.exe");

                MessageBox.Show(Process.GetCurrentProcess().ProcessName);

                Process.GetCurrentProcess().Kill();

            }
        }
    }
}
```

64 - Process Class pt 2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Diagnostics;

namespace _64___Process_Class_pt_2{
    public partial class Form1 : Form    {
        public Form1()        {            InitializeComponent();        }

        private void button1_Click(object sender, EventArgs e)        {
           foreach (Process p in Process.GetProcesses())
               MessageBox.Show(p.ProcessName);//long list

           //foreach (Process p in Process.GetProcesses()) examples
           //p.kill(); bad idea

           //foreach (Process p in Process.GetProcesses()) examples
           //MessageBox.Show(p.responding.toString());can loop thru with foreach

           foreach (Process p in Process.GetProcessesByName("skype"))
           MessageBox.Show(p.ProcessName);//by name
        }
    }
}
```

65 - Null Coalesce Operator

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _65___Null_Coalesce_Operator
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            string myString = null;
            if (myString == null)
            {
                MessageBox.Show("Is null!");
            }
            else {
                MessageBox.Show(myString);
            }

            string qq = null;
            MessageBox.Show(qq ?? "This is null shorthand");//?? shorthand then ternary
operator

            int? i = null;//?? for null tests.
            int x = i ?? 8;
            MessageBox.Show(x.ToString());
        }
    }
}
```

66 - Bitwise Operators pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
```

```
namespace _66___Bitwise_Operators_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //use calculator to show binary
            short myShort = ~3;//invert op 0000 0000 0000 0011 ~ 1111 1111 1111 1100 =
inverted.
            MessageBox.Show(Convert.ToString(myShort,2));
            myShort = ~5;
            MessageBox.Show(Convert.ToString(myShort, 2));
        }
    }
}
```

67 - Bitwise Operators pt 2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _67___Bitwise_Operators_pt_2
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            short myShort = 3 & 5;//compares two number at the binary level, one and.
0011 and 1001 = 0001
            MessageBox.Show(Convert.ToString(myShort,2));

            short myShort2 = 3 & 4;//compares two number at the binary level, one and.
0011 and 0100 = 0000
            MessageBox.Show(Convert.ToString(myShort2, 2));

            short myShort3 = 3 | 5;//compares two number at the binary level, one and.
0011 and 0101 = 0111
            MessageBox.Show(Convert.ToString(myShort3, 2));
        }
    }
}
```

68 - Bitwise Operators pt 3

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _68___Bitwise_Operators_pt_3
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            short myShort = 3 ^ 5;//xor 0011 xor 0101 = 0110, 0 ^ 1 = 1, 1 ^ 1 = 0, 0 ^ 0
= 0, 1 ^ 0 = 1
            MessageBox.Show(Convert.ToString(myShort,2));

            short myShort2 = 3 >> 1;//shift right, 0011 >> 0001 = 0001
            MessageBox.Show(Convert.ToString(myShort2,2));

            short myShort3 = 5 >> 1;//shift right, 0101 >> 0001 = 0010
            MessageBox.Show(Convert.ToString(myShort3, 2));

            short myShort4 = 5 << 1;//shift left, 0101 >> 0001 = 1010
            MessageBox.Show(Convert.ToString(myShort4, 2));
        }
    }
}
```

69 - Threading pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Threading;

namespace _69___Threading_pt_1
{
    public partial class Form1 : Form
    {
```

```
        public Form1()
        {
            InitializeComponent();
        }
        Thread t;// to access thread in anyone of the methods
        private void button1_Click(object sender, EventArgs e)
        {
            //only way to stop is stop debugging, or task manager
            //Freeze(); before background threading windows would not repond
            t = new Thread(Freeze);
            t.Start();
        }

        //threading will allow method to run in background but will not stop normally
when form is closed.
        void Freeze() {
            for (; ; ) ;//infinate loop
        }

        private void Form1_FormClosing(object sender, FormClosingEventArgs e)
        {
            t.Abort();//will exit out of the application running in the background.
        }
    }
}
```

70 - Threading pt 2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Threading;


//http://www.youtube.com/watch?v=2e_dvohtZGc
namespace _70___Threading_pt_2
{
    public partial class Form1 : Form//partial class here and in the also created in the
designer
    {
        public Form1()
        {
            InitializeComponent();
        }

        //check the original code and the error refers to the designer.
        //Solution Explorer on the right ,double click 'Form1.Designer.cs'

        Thread t;// can call from other methods.
        //created after first error message.
        string myString = "";

        private void button1_Click(object sender, EventArgs e) {//other partical class in
designer.
```

```
            t = new Thread(Write);
            t.Start();

            //created after second error message.
            //no event methods in threading.
            while (t.IsAlive);//isalive continue do nothing and then...
            textBox1.Text = myString;// this after thread is finished.
        }

        void Write(){
            for(int i = 0;i < 1000;i++)
                myString += "Chris" + i.ToString() + "\r\n";//
        }

        private void Form1_FormClosing(object sender, FormClosingEventArgs e){
            t.Abort();
        }

    }
}
```

71 Threading pt3

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Threading;


//http://www.youtube.com/watch?v=2e_dvohtZGc
namespace _70___Threading_pt_2
{
    public partial class Form1 : Form//partial class here and in the also created in the
designer
    {
        public Form1()
        {
            InitializeComponent();
        }

        //check the original code and the error refers to the designer.
        //Solution Explorer on the right ,double click 'Form1.Designer.cs'

        Thread t;// can call from other methods.
        //created after first error message.
        string myString = "";

        private void button1_Click(object sender, EventArgs e)
        {//other partical class in designer.
            t = new Thread(Write);
            object[] objA = {"Bob",500 };//object array to passing two params.
            t.Start(objA);//changed from last tutorial

            //created after second error message.
            //no event methods in threading.
```

```
            while (t.IsAlive) ;//isalive continue do nothing and then...
            textBox1.Text = myString;// this after thread is finished.
        }

        void Write(object array)//only pass an object,changed from last tutorial
        {
            object[] o = array as object[];//cast new object array
            for (int i = 0; i < Convert.ToInt32(o.[1]); i++){
                Thread.Sleep(50);//wait 50 milliseconds = .5 seconds
                myString += o[0].ToString() + "\r\n";//changed from last tutorial
            }
        }

        private void Form1_FormClosing(object sender, FormClosingEventArgs e)
        {
            t.Abort();
        }

    }
}
```

72 - WebClient pt 1 Status Log

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Net;

namespace _72___WebClient_pt_1_Status_Log
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        //way to share status with freinds
        //status.txt saved in coding folder C#
        private void Form1_Load(object sender, EventArgs e)
        {
            WebClient wc = new WebClient();
            textBox1.Text =
wc.DownloadString("http://www.weebly.com/uploads/2/3/0/7/23078600/status.txt");
        }
        //http://dresdenmaine.weebly.com/
        //http://www.weebly.com/weebly/main.php#
    }
}
```

73 - WebClient Class pt 2 Downloading Files

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Net;

namespace _73___WebClient_Class_pt_2_Downloading_Files
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        //new webhost site weebly
        private void button1_Click(object sender, EventArgs e)
        {
            SaveFileDialog sfd = new SaveFileDialog();
            if(sfd.ShowDialog()==DialogResult.OK){
                WebClient wc = new WebClient();
                wc.DownloadFileAsync(new
Uri("http://www.weebly.com/uploads/2/3/0/7/23078600/status.txt"), sfd.FileName);//will
thread auto
                wc.DownloadFileCompleted += new
AsyncCompletedEventHandler(wc_DownloadFileCompleted);//tab twice to get class and event
                wc.DownloadProgressChanged += new
DownloadProgressChangedEventHandler(wc_DownloadProgressChanged);//+= tab twice will
finish line and add event
            }

        }

        void wc_DownloadProgressChanged(object sender, DownloadProgressChangedEventArgs
e)
        {
            label1.Text = "Progress: %" + e.ProgressPercentage.ToString();//progress
        }

        void wc_DownloadFileCompleted(object sender, AsyncCompletedEventArgs e)
        {
            MessageBox.Show("File downloaded");
        }
    }
}
```

74 - 76 Project 1 Email Sender pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
```

```
using System.Windows.Forms;
using System.Net;
using System.Net.Mail;

namespace _74___Project_1_Email_Sender_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        //can use char map to get the circle for password protection.
        //https://www.iconfinder.com/  24px for email icon. download as .png


        private void Form1_Load(object sender, EventArgs e)
        {

        }

        private void button1_Click(object sender, EventArgs e)
        {
            try
            {
                if (textBox3.Text.Contains("@gmail.com"))
                {
                    MessageBox.Show("Need gmail account!");
                    return;
                }
                button1.Enabled = false;
                MailMessage message = new MailMessage();
                message.From = new MailAddress(textBox4.Text);
                message.Subject = textBox5.Text;
                message.Body = textBox2.Text;
                foreach (string s in textBox1.Text.Split(';'))
                    message.To.Add(s);
                SmtpClient client = new SmtpClient();
                client.Credentials = new NetworkCredential(textBox4.Text, textBox3.Text);
                client.Host = "smtp.gmail.com";
                client.Port = 587;
                client.EnableSsl = true;
                client.Send(message);
                button1.Enabled = true;
                MessageBox.Show("Mail sent!!");
            }
            catch { MessageBox.Show("Error typing message!", "Error",
MessageBoxButtons.OK); }//error icon
            finally { button1.Enabled = true; }
        }
    }
}
```

77 - DateTime Struct

```
using System;
using System.Collections.Generic;
```

```
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _77___DateTime_Struct
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            DateTime dt = new DateTime(1965, 02, 22,3,32,52);//24 hour time
            MessageBox.Show(dt.ToString());

            DateTime tt = DateTime.Today; //24 hour time, .now; for date and time.
            MessageBox.Show(tt.ToString());

            MessageBox.Show(DateTime.IsLeapYear(2012).ToString());

            MessageBox.Show(DateTime.DaysInMonth(2013, 03).ToString());

            MessageBox.Show(DateTime.Now.ToFileTime().ToString("x"));
            DateTime ft = DateTime.FromFileTime(longFileTime);//longFileTime is from the
file.
        }
    }
}
```

78 – DateTimePicker

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _78___DateTimePicker
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        //http://msdn.microsoft.com/en-
us/library/system.windows.forms.datetimepicker.customformat.aspx
        //type code in custom format property
        // set format to custom format
        //change font or colors
```

```
        private void button1_Click(object sender, EventArgs e)
        {
            DateTime dt = dateTimePicker1.Value;
            MessageBox.Show(dt.ToString());
        }
    }
}
```

79 - Picture Box and Image Class

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _79___Picture_Box_and_Image_Class
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            OpenFileDialog ofd = new OpenFileDialog();
            if(ofd.ShowDialog()==DialogResult.OK){
                //Image image = Image.FromFile(ofd.FileName);//use with image object
below.
                //pictureBox1.ImageLocation = ofd.FileName;
                //pictureBox1.Image = image; //image class way.

                pictureBox1.ImageLocation =
"http://www.midstateberkshire.com/images/aerospace.jpg";

            }
        }
    }
}
```

80 - Clipboard Class

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
```

```
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _80___Clipboard_Class
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void Form1_Load(object sender, EventArgs e)
        {
            pictureBox1.ImageLocation = "\\\\DRIVEJ\\Work\\CHRIS\\Screen
Dumps\\binary.jpg";
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //textBox2.Text = Clipboard.GetText();// getText() get text out of clipboard.
            pictureBox2.Image = Clipboard.GetImage();
            MessageBox.Show(Clipboard.GetData(DataFormats.rtf).ToString());
            try
            {
                Clipboard.SetText("Chris");//doesn't work thru's error
                Clipboard.SetImage(pictureBox1.Image);
                Clipboard.Clear();
            }
            catch { }
        }
    }
}
```

81 – ColorDialog

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _81___ColorDialog
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            ColorDialog cd = new ColorDialog();
```

```
            cd.ShowHelp = true;
            cd.HelpRequest += new EventHandler(cd_HelpRequest);//+= tab twice brings up
below method.

            cd.FullOpen = true;//allows default to choose custom color.
            if (cd.ShowDialog()==DialogResult.OK){
                button1.BackColor = cd.Color;


            }
        }

        void cd_HelpRequest(object sender, EventArgs e)
        {
            MessageBox.Show("Choose a color for the background of button");
        }
    }
}
```

82 - Color Struct

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _82___Color_Struct
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            ColorDialog cd = new ColorDialog();
            if(cd.ShowDialog()==DialogResult.OK){
                Color c = cd.Color;//color struct
                if (c.IsNamedColor) MessageBox.Show(c.Name);//get name of color, no name
for custom colors.
                if (c.IsKnownColor) { MessageBox.Show(c.ToKnownColor().ToString());
}//show name of windows default colors
                //KnownColor.ActiveBorder;//enum of known colors in list

                Color co = Color.MintCream;//can set to a color.
                MessageBox.Show(co.Name);

                Color cr = Color.FromKnownColor(KnownColor.ActiveBorder);//pick color
from knowncolor enum
                //MessageBox.Show(cr.Name);both works my version
```

```
                MessageBox.Show(cr.ToKnownColor().ToString());

                //color into a 32bit int, alpha, red, green, blue, gives hex or color.
                MessageBox.Show(cr.ToArgb().ToString("x")); //aabbccdd: aa = alpha, bb =
red, cc = grean, dd = blue

                //change hex color to a color
                Color cc = Color.Black;
                int i = cc.ToArgb();
                Color b = Color.FromArgb(i);
                button1.BackColor = b;
            }
        }
    }
}
```

83 – FontDialog

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _83___FontDialog
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            FontDialog fd = new FontDialog();
            fd.MinSize = 10;//set size limit.
            fd.MaxSize = 20;
            fd.ShowColor = true; // allows user to choose color.
            fd.ShowHelp = true;
            fd.HelpRequest += new EventHandler(fd_HelpRequest);//help method down below.

            if(fd.ShowDialog()==DialogResult.OK){
                textBox1.Font = fd.Font;
                textBox1.ForeColor = fd.Color;//set with fd.showcolor = true;

            }
        }

        void fd_HelpRequest(object sender, EventArgs e)
        {
            MessageBox.Show("Help");
        }
    }
```

```
}
```

84 - Timer Control

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _84___Timer_Control
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //1000 milliseconds = 1 second
            //set timer intreval on form1.cs design properties. click timer button and
choose events.
            timer1.Start();

        }
        int i = 0;
        private void timer1_Tick(object sender, EventArgs e)
        {
            //new tick event
            //after once second show box

            //timer1.Stop();can stop timer
            //MessageBox.Show("Hello");  and show in message box

            i++;
            textBox1.Text += i.ToString();//+= add to text sting not adding up numbers. 1
2 3 4 5 not 1+1+1+1+1
        }
    }
}
```

85 - Playing Sounds

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
```

```
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Media; // for sound classes

namespace _85___Playing_Sounds
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //test a .wav file in player.
            OpenFileDialog ofd = new OpenFileDialog();
            if(ofd.ShowDialog()==DialogResult.OK){
                SoundPlayer s = new SoundPlayer(ofd.FileName);
                s.Play();
                //s.PlayLooping();play over and over.
                s.PlaySync();// freeze your application, can move to sound stops.
                SystemSounds.Asterisk.Play();//use windows sounds
                SystemSounds.Beep.Play();


            }
        }
    }
}
```

86 - MaskedTextBox Control

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _86___MaskedTextBox_Control
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //mask is set in the property window
            //custom go to goolge.
```

```
            //http://msdn.microsoft.com/en-
us/library/system.windows.forms.maskedtextbox.mask.aspx
            //- () are literals can't change
        }
    }
}
```

87 - Multiple Forms1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _87___Multiple_Forms
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            this.IsMdiContainer = true;// this access this class, ismdicontainer can have
forms inside of form1.
            Form2 frm2 = new Form2();
            frm2.MdiParent = this;//refers to form1 container
            frm2.Show();//not showdialog cannot use.

            Form3 Frm3 = new Form3();
            Frm3.MdiParent = this;//refers to form1 container
            Frm3.Show();//not showdialog cannot use.

            Form4 Frm4 = new Form4();//all inside form 1
            Frm4.MdiParent = this;//refers to form1 container
            Frm4.Show();//not showdialog cannot use.

        }

        private void button2_Click(object sender, EventArgs e)
        {
            //arranges minimized layout of children windows.
            this.LayoutMdi(MdiLayout.ArrangeIcons);//set all the children inside
container

            this.LayoutMdi(MdiLayout.TileHorizontal);
        }
    }
}
```

89 - ComboBox Control

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _89___ComboBox_Control
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //choose black arrow to edit items on form.
            if (comboBox1.Text == "Chris") { MessageBox.Show("Test"); }

            comboBox1.Items[0] = "Bob";
            comboBox1.Items.Add("Chris");
            MessageBox.Show(comboBox1.Items.Count.ToString());

        }

        private void comboBox1_SelectedIndexChanged(object sender, EventArgs e)
        {
            MessageBox.Show("test");//event choose on form view.
        }
    }
}
```

90 - ProgressBar Control

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _90___ProgressBar_Control
{
    public partial class Form1 : Form
    {
        public Form1()
```

```
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //value can also be set in properties.
            //progressBar1.Value += 10;
            //progressBar1.PerformStep();//better way and set the step in the prop.

            //change marquee prop, instead of blocks style previously.
            progressBar1.Style = ProgressBarStyle.Marquee;
            progressBar1.MarqueeAnimationSpeed = 200;//contiuous scroll accross if you
don't know the end.lower the value the faster.

        }

        private void button2_Click(object sender, EventArgs e)
        {
            progressBar1.Style = ProgressBarStyle.Blocks;
        }
    }
}
```

91 - 94 - ListView Control pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _91___ListView_Control_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //add items user enters to list.
            //hit black arrow on form view to edit columns.
            //black arrow view details to see headings.
            //multiselect to false.
            //full row select.
            //grid lines to true.

            ListViewItem lvi = new ListViewItem(textBox1.Text);
            lvi.SubItems.Add(textBox2.Text);
            lvi.SubItems.Add(textBox3.Text);
            listView1.Items.Add(lvi);
            textBox1.Text = "";
            textBox2.Text = "";
```

```
            textBox3.Text = "";
        }
        //choose listbox got properties and choose 'ContextMenuStrip' = ContextMenuStrip1
        //context menu for right click ContextMenuStrip1 or double click
        //left click ContextMenuStrip1 and box will appear for menu items to add.
        //multi select to true now.

        private void getNameOfToolStripMenuItem_Click(object sender, EventArgs e)
        {
            if (listView1.SelectedItems.Count != 0){
                MessageBox.Show(listView1.SelectedItems[0].SubItems[0].Text);

                foreach(ListViewItem lvi in listView1.SelectedItems)
                    MessageBox.Show(lvi.SubItems[0].Text);//0 = name , 1 = age, 3 = email
            }
        }

        private void removeSelectedItemsToolStripMenuItem_Click(object sender, EventArgs
e)
        {
            //double click menu to create a event handler

            foreach (ListViewItem lvi in listView1.SelectedItems)
                lvi.Remove();
        }

        private void removeAllItemsToolStripMenuItem_Click(object sender, EventArgs e)
        {
            listView1.Items.Clear();
        }

        private void button2_Click(object sender, EventArgs e)
        {
            foreach(ListViewItem lvi in listView1.Items)
                if (lvi.Checked) { lvi.Remove(); }
        }
        //add checkbox item in property's checkboxs to true.

    }
}
```

95 - ToolStrip and StatusStrip Controls

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _95___ToolStrip_and_StatusStrip_Controls
{
    public partial class Form1 : Form
    {
        public Form1()
```

```
        {
            InitializeComponent();
        }
        //click tool stip on form and goto property
        //change: DisplaySytle = Text.
        //change: Text = 'File'
        //if use '&File' then alt-f will work.

        //choose button to change image.
        //https://www.iconfinder.com/

        //can add seperator.


        //can add status strip no code add in tutorial.
    }
}
```

96 - NotifyIcon Control

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _96___NotifyIcon_Control
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            this.Hide(); //refer to form1 class.
            notifyIcon1.ShowBalloonTip(1000,"Still Running","My Text",ToolTipIcon.Info);
        }

        private void notifyIcon1_MouseDoubleClick(object sender, MouseEventArgs e)
        {
            //click notify icon1 goto events click 'MouseDoubleClick' to create event.
            this.Show();
        }
    }
}
```

97 - Opening Files With Your App

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _97___Opening_Files_With_Your_App
{
    public partial class Form1 : Form
        //1) right click on form and chooses view code.
    {

        public Form1(string s)//constructor pass path thru s string
        {
            //2) on solution explorer doubleclick on 'Program.cs'
            InitializeComponent();
            MessageBox.Show(s);//3) create message box
            //copy this program to a folder and drag and drop file on top of this exe to
show path in mbox.
            //compile first to get exe.
        }
    }
}
```

Program.cs

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Windows.Forms;

namespace _97___Opening_Files_With_Your_App
{
    static class Program
    {
        /// <summary>
        /// The main entry point for the application.
        /// </summary>
        [STAThread]
        static void Main(string[] files)//add to main
        {
            Application.EnableVisualStyles();
            Application.SetCompatibleTextRenderingDefault(false);
            foreach(string s in files)
                Application.Run(new Form1(s));//add 's' to pass
        }
    }
}
```

98 – Settings

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _98___Settings
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
            //on open form.
            textBox1.Text = _98___Settings.Properties.Settings.Default.Name;
            textBox2.Text = _98___Settings.Properties.Settings.Default.Age.ToString();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //1) on form view click 'Project Menu', 'Settings Properties', 'Settings' a
settings tab appears '98 - Setting' name of program.
            //to save data(settings) of form.

            _98___Settings.Properties.Settings.Default.Name = textBox1.Text;
            _98___Settings.Properties.Settings.Default.Age =
Convert.ToInt32(textBox2.Text);
            _98___Settings.Properties.Settings.Default.ButtonA = button1;//saving props
for button settings.
            _98___Settings.Properties.Settings.Default.Save();

            //if want to save prop for button
            //no button on list but goto 'browse' on settings.
            //will give you a list of namespaces that you have set above with using.
            //http://www.youtube.com/watch?v=1-aPZWXYVbo
        }
    }
}
```

99 - 100 - TreeView Control pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _99___101___TreeView_Control_pt_1
{
    public partial class Form1 : Form
```

```
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            treeView1.Nodes.Add("People");
            treeView1.Nodes[0].Nodes.Add("Chris");//0 rep first node "people"
            treeView1.Nodes[0].Nodes.Add("Dianne");
            treeView1.Nodes[0].Nodes.Add("Seth");
            treeView1.Nodes.Add("Animals");
            treeView1.Nodes[1].Nodes.Add("Shadow");
            treeView1.Nodes[1].Nodes.Add("Cowboy");
            treeView1.Nodes[1].Nodes[0].Nodes.Add("Dog");


        }

        private void button2_Click(object sender, EventArgs e)
        {
            removeCheckedNodes(treeView1.Nodes);
            //treeView1.SelectedNode.Remove();
            //treeView1.Nodes.Clear();//remove all nodes.
            //2) select treeview1 on form and property's change checkbox: = true.
        }

        List<TreeNode> tnlist = new List<TreeNode>();

        void removeCheckedNodes(TreeNodeCollection tnc) {//new method for checkng &
removing nodes.
            foreach (TreeNode tn in tnc)
                if (tn.Checked) tnlist.Add(tn);
                else if (tn.Nodes.Count != 0) removeCheckedNodes(tn.Nodes);//recursion
recall function inside of.
            foreach (TreeNode tn in tnlist)
                treeView1.Nodes.Remove(tn);
        }
    }
}
```

101 - TreeView pt 3 image

```
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _101___TreeView_pt_3_image
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            //1) click 'imagelist1' on form and properties 'images' and add.
```

```
            //2) image size 25,25
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            // 3)
            TreeNode tn = new TreeNode();
            tn.Text = "Computer";
            tn.ImageIndex = 0;
            tn.SelectedImageIndex = 0;
            treeView1.Nodes.Add(tn);

            TreeNode ta = new TreeNode();
            ta.Text = "Animal";
            ta.ImageIndex = 1;
            ta.SelectedImageIndex = 1;
            treeView1.Nodes.Add(ta);

            TreeNode tp = new TreeNode();
            tp.Text = "NX";
            tp.ImageIndex = 3;
            tp.SelectedImageIndex = 3;
            treeView1.Nodes[0].Nodes.Add(tp);

            //4) select treeview on form goto prop and imagelist choose imagelist1 to
link to treeview.

        }
    }
}
```

102 - Property Grid

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _102___Property_Grid
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        Person p = new Person();
        private void button1_Click(object sender, EventArgs e)
        {
            p.Name = "Chris";
            p.Age = 20;
            p.Email = "cdpaine2003@yahoo.com";
            propertyGrid1.SelectedObject = p;
            Reload();
        }
        void Reload() {
```

```
            textBox1.Text = p.Name;
            textBox2.Text = p.Age.ToString();
            textBox3.Text = p.Email;
        }

        private void propertyGrid1_PropertyValueChanged(object s,
PropertyValueChangedEventArgs e)
        {
            //form view click on propertygrid1 goto prop and click on events and
doubleclick on propertyvaluechanged to generat this.
            Reload();//reload method

            //form view prop select 'selectedObject' choose button1 and at runtime can
get propery's for button1 or any object is set.
        }
    }

    class Person {
        public string Name
        {
            get;
            set;
        }

        public int Age
        {
            get;
            set;
        }

        public string Email
        {
            get;
            set;
        }



    }
}
```

103 - Accessing All Controls pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _103___Accessing_All_Controls_pt_1
{
    public partial class Form1 : Form
    {
```

```
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            accessAll(this.Controls);
            //foreach (Control c in this.Controls) 1) first run did all but,
                //c.Text = "Chris";//changes all but did not change control inside of
group container.
        }
        void accessAll(Control.ControlCollection cc) {
            foreach (Control c in cc)
            {
                c.Text = "Paine";
                if (c.HasChildren) accessAll(c.Controls);//2) recursion to check for
children inside group container.

            }
        }
    }
}
```

104 - Accessing All Controls pt 2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _104___Accessing_All_Controls_pt_2
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click_1(object sender, EventArgs e)
        {
            accessAll(this.Controls);

        }
        void accessAll(Control.ControlCollection cc)
        {
            foreach (Control c in cc)
            {
                //c.Enabled = false;  all controls
                if (c is Button)
                {
                    Button b = c as Button;
                    b.Click += new EventHandler(b_Click);//tab tab after the += generate
event handler.
```

```
                }

                if(c is CheckBox){
                    CheckBox ch = c as CheckBox;
                    ch.Checked = true;
                }
                if (c.HasChildren) accessAll(c.Controls);

            }
        }

        void b_Click(object sender, EventArgs e)
        {
            MessageBox.Show("You click a button!");
        }
        //http://www.youtube.com/watch?v=MEu3Y5cTwZI

    }
}
```

105 - WebBrowser Control MS pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _105___WebBrowser_Control_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {

            webBrowser1.Navigate(textBox1.Text);

        }

        private void webBrowser1_Navigated(object sender, WebBrowserNavigatedEventArgs e)
        {
            //form prop'navigated' to create this event.
            //browser build off of ie.

            textBox1.Text = webBrowser1.Url.ToString();
        }

        private void button2_Click(object sender, EventArgs e)
```

```
        {
            webBrowser1.GoBack();
        }

        private void button3_Click(object sender, EventArgs e)
        {
            webBrowser1.Refresh();
        }

        private void button4_Click(object sender, EventArgs e)
        {

            textBox1.Text = "http://www.midstateberkshire.com/";
            webBrowser1.Navigate(textBox1.Text);
        }

        private void Form1_Load(object sender, EventArgs e)
        {
            //textBox1.Text = "http://www.berkshireindustries.com/";
            //webBrowser1.Navigate(textBox1.Text);
        }
    }
}
```

106 - WebBrowser Control pt 2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _106___WebBrowser_Control_pt_2
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        WebBrowser wb = new WebBrowser();
        private void button1_Click(object sender, EventArgs e)
        {
            wb.Navigate("http://halo.bungie.net/stats/default.aspx?player" +
textBox1.Text + "&sg=0");
            wb.DocumentCompleted += new
WebBrowserDocumentCompletedEventHandler(wb_DocumentCompleted);
        }

        void wb_DocumentCompleted(object sender, WebBrowserDocumentCompletedEventArgs e)
        {
            //to get element right click on chrome and choose inspect element.
doubleclick and get id.
```

```
            label1.Text = "Bungie.net " +
wb.Document.GetElementById("ctl00_TopContentArea_noStatsMessage").InnerText;
        }
    }
}
```

107 - WebBrowser Control pt 3

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _107___WebBrowser_Control_pt_3
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            webBrowser1.Document.GetElementById("p_13838465-p").InnerText =
textBox1.Text;//goto url right click to 'inpect element' get id, copy/paste.
        }

        private void button2_Click(object sender, EventArgs e)
        {
            webBrowser1.Document.GetElementById("search-
submit").InvokeMember("Click");//search button
            //could not find script to search for click event on webpage.
        }
    }
}
```

108 - TrackBar and NumericUpDown Controls

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
```

```
namespace _108___TrackBar_and_NumericUpDown_Controls
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        //form prop can set the max,min, tick frequency
        //horiz or vert on prop on form view.
        //can change tick side or disable.
        private void button1_Click(object sender, EventArgs e)
        {
            MessageBox.Show(trackBar1.Value.ToString());
        }

        private void numericUpDown1_ValueChanged(object sender, EventArgs e)
        {
            //masked textbox
            //can change on prop form view:
            //min/max
            //increment
        }
    }
}
```

109 - Reading XML pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Xml; // for xml stuff

namespace _109___Reading_XML_pt_1
{
    public partial class Form1 : Form
    {

        //a way of storing data.
        //uses nodes similar as trees.
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            OpenFileDialog ofd = new OpenFileDialog();
            ofd.Filter = "XML|*.xml";

            if(ofd.ShowDialog()==DialogResult.OK){
                XmlDocument xdoc = new XmlDocument();
                xdoc.Load(ofd.FileName);
```

```
MessageBox.Show(xdoc.SelectSingleNode("people/person/name").InnerText);//give path of
nodes

MessageBox.Show(xdoc.SelectSingleNode("people/person/Age").InnerText);//give path of
nodes


            }
        }
    }
}
//example of nodes in xml
//<people>
//    <person>
//        <name>Adam</name>
//        <Age>15</Age>
//        <Email>address@gmail.com</Email>
//    </person>
//</people
```

110 - Reading xml pt2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Xml; // for xml stuff

namespace _110___Reading_xml_pt2
{
    public partial class Form1 : Form
    {
        //a way of storing data.
        //uses nodes similar as trees.
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            OpenFileDialog ofd = new OpenFileDialog();
            ofd.Filter = "XML|*.xml";

            if(ofd.ShowDialog()==DialogResult.OK){
                XmlDocument xdoc = new XmlDocument();
                xdoc.Load(ofd.FileName);//data from weebly site I created.
                foreach(XmlNode xn in xdoc.SelectNodes("people/person"))
                    MessageBox.Show(xdoc.SelectSingleNode("name").InnerText);//will cycle
names.
```

```
            }
        }
    }
}
//example of nodes in xml
//<people>
//    <person>
//        <name>Adam</name>
//        <Age>15</Age>
//        <Email>address@gmail.com</Email>
//    </person>
//</people
```

111 - Editing XML File

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Xml;

namespace _111___Editing_XML_File
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
        XmlDocument xDoc;
        string path;

        private void button1_Click(object sender, EventArgs e)
        {
            OpenFileDialog ofd = new OpenFileDialog();
            ofd.Filter = "XML | *.xml";
            if(ofd.ShowDialog()==DialogResult.OK){
                path = ofd.FileName;
                xDoc = new XmlDocument();
                xDoc.Load(path);
                textBox2.Text = xDoc.SelectSingleNode("People/Person/Name").InnerText;
                numericUpDown1.Value =
Convert.ToInt32(xDoc.SelectSingleNode("People/Person/Age").InnerText);
                textBox3.Text = xDoc.SelectSingleNode("People/Person/Email").InnerText;

            }
        }

        private void button2_Click(object sender, EventArgs e)
        {
            xDoc.SelectSingleNode("People/Person/Name").InnerText = textBox2.Text;
            xDoc.SelectSingleNode("People/Person/Age").InnerText) =
numericUpDown1.Value.ToString();
```

```
        }
    }
}
```

112 - Writing New XML file

```
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Xml;

namespace _112___Writing_New_XML_file
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            XmlTextWriter xtw = new
XmlTextWriter("C:\\Users\\cpaine\\Desktop\\TestFolder\\xdoc1.xml",Encoding.UTF8);
            xtw.Formatting = Formatting.Indented;
            xtw.WriteStartElement("People");
            xtw.WriteStartElement("Person");
            xtw.WriteStartElement("Name");
            xtw.WriteString(textBox1.Text);
            xtw.WriteEndElement();

            xtw.WriteStartElement("Age");
            xtw.WriteString(numericUpDown1.Value.ToString());
            xtw.WriteEndElement();

            xtw.WriteStartElement("Email");
            xtw.WriteString(textBox2.Text);
            xtw.WriteEndElement();

            xtw.WriteEndElement();
            xtw.Close();
        }
    }
}
```

113 - Write Nodes to Existing XML File

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
```

```
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Xml;

namespace _113___Write_Nodes_to_Existing_XML_File
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            XmlDocument doc = new XmlDocument();
            doc.Load("C:\\Users\\cpaine\\Desktop\\TestFolder\\xdoc1.xml");

            XmlNode person = doc.CreateElement("Person");//create pearson
            XmlNode name = doc.CreateElement("Name");//create name
            name.InnerText = textBox1.Text;
            person.AppendChild(name);//add to name node

            XmlNode age = doc.CreateElement("Age");
            age.InnerText = numericUpDown1.Value.ToString();
            person.AppendChild(age);

            XmlNode email = doc.CreateElement("Email");
            email.InnerText = textBox1.Text;
            person.AppendChild(email);

            doc.DocumentElement.AppendChild(person);//add to person node
            doc.Save("C:\\Users\\cpaine\\Desktop\\TestFolder\\xdoc1.xml");
        }
    }
}
```

114 - Deleting a XML Node

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Xml;

namespace _114___Deleting_a_XML_Node
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
```

```
        {
            XmlDocument xdoc = new XmlDocument();
            xdoc.Load("C:\\Users\\cpaine\\Desktop\\TestFolder\\xdoc1.xml");

            //can change the Name to age if you want to remove nodes using age.
            foreach (XmlNode xNode in xdoc.SelectNodes("People/Person"))
                if (xNode.SelectSingleNode("Name").InnerText == textBox1.Text)
xNode.ParentNode.RemoveChild(xNode);

            xdoc.Save("C:\\Users\\cpaine\\Desktop\\TestFolder\\xdoc1.xml");


        }
    }
}
```

115 - MD5 and SHA1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Security.Cryptography;

namespace _115___MD5_and_SHA1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //hash a bunch of data to check if some tampered with data.
            //calc by computer
            //md5 16 bytes long
            //sha1 20 bytes
            //MD5CryptoServiceProvider md5 = new MD5CryptoServiceProvider();
            //Encoding utf8 = new UTF8Encoding();


//MessageBox.Show(BitConverter.ToString(md5.ComputeHash(utf8.GetBytes(textBox1.Text))));

            SHA1CryptoServiceProvider sha1 = new SHA1CryptoServiceProvider();
            UTF8Encoding utf8 = new UTF8Encoding();

MessageBox.Show(BitConverter.ToString(sha1.ComputeHash(utf8.GetBytes(textBox1.Text))));
        }
    }
}
```

116 - TripleDES Encryption

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Security.Cryptography;

namespace _116___TripleDES_Encryption
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            MD5CryptoServiceProvider md5 = new MD5CryptoServiceProvider();
            UTF8Encoding utf8 = new UTF8Encoding();
            TripleDESCryptoServiceProvider tdes = new TripleDESCryptoServiceProvider();
            tdes.Key = md5.ComputeHash(utf8.GetBytes(textBox1.Text));//set up key out of
hash.
            tdes.Mode = CipherMode.ECB;
            tdes.Padding = PaddingMode.PKCS7;
            ICryptoTransform trans = tdes.CreateEncryptor();

            textBox3.Text =
BitConverter.ToString(trans.TransformFinalBlock(utf8.GetBytes(textBox2.Text),0,
utf8.GetBytes(textBox2.Text).Length));

        }
    }
}
```

117 - TripleDES Decryption

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Security.Cryptography;

namespace _117___TripleDES_Decryption
{
    public partial class Form1 : Form
    {
```

```
        public Form1()
        {
            InitializeComponent();
        }
        byte[] encrypted;

        private void button1_Click(object sender, EventArgs e)
        {
            MD5CryptoServiceProvider md5 = new MD5CryptoServiceProvider();
            UTF8Encoding utf8 = new UTF8Encoding();
            TripleDESCryptoServiceProvider tdes = new TripleDESCryptoServiceProvider();
            tdes.Key = md5.ComputeHash(utf8.GetBytes(textBox1.Text));
            tdes.Mode = CipherMode.ECB;
            tdes.Padding = PaddingMode.PKCS7;
            ICryptoTransform trans = tdes.CreateEncryptor();
            encrypted = trans.TransformFinalBlock(utf8.GetBytes(textBox2.Text), 0,
utf8.GetBytes(textBox2.Text).Length);
            textBox3.Text = BitConverter.ToString(encrypted);
        }

        private void button2_Click(object sender, EventArgs e)
        {
            MD5CryptoServiceProvider md5 = new MD5CryptoServiceProvider();
            UTF8Encoding utf8 = new UTF8Encoding();
            TripleDESCryptoServiceProvider tdes = new TripleDESCryptoServiceProvider();
            tdes.Key = md5.ComputeHash(utf8.GetBytes(textBox4.Text));
            tdes.Mode = CipherMode.ECB;
            tdes.Padding = PaddingMode.PKCS7;
            ICryptoTransform trans = tdes.CreateDecryptor();
            textBox5.Text = utf8.GetString(trans.TransformFinalBlock(encrypted, 0,
encrypted.Length));

        }
    }
}
```

118 - Drag and Drop

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _118___Drag_and_Drop
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_DragOver(object sender, DragEventArgs e)
        {
            //prop: set border
```

```
            //prop: allow drop = true
            //panel events:  dragover

            e.Effect = DragDropEffects.All;//drop any file on drop

        }

        private void panel1_DragDrop(object sender, DragEventArgs e)
        {
            //event: dragdrop
            //cast to string array
            string[] files = e.Data.GetData(DataFormats.FileDrop) as string[];
            foreach (string s in files)
            {
                MessageBox.Show(s);
            }
        }
    }
}
```

119 - Drawing Shapes

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _119___Drawing_Shapes
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            //event: click
            SolidBrush sb = new SolidBrush(Color.Red);
            Graphics g = panel1.CreateGraphics();
            g.FillEllipse(sb, 20, 20, 50, 50);//0,0 top left in pixels
            g.FillRectangle(sb, 20, 20, 50, 50);
        }
    }
}
```

120 - Drawing More Shapes

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _120___Drawing_More_Shapes
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            SolidBrush sb = new SolidBrush(Color.Blue);
            Graphics g = panel1.CreateGraphics();
            g.FillPie(sb,20,20,60,60,0,270);//sweeps clockwise
            Point[] points = { new Point(0, 20), new Point(0, 0), new Point(20, 0) };
//points array
            g.FillPolygon(sb,points);
        }
    }
}
```

121 - Drawing with Pen Class pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _121___Drawing_with_Pen_Class_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            //event: click
            Pen pen = new Pen(Color.Red,1);//change line thichnes in pixs
            Graphics g = panel1.CreateGraphics();
            g.DrawRectangle(pen, 20, 20, 50, 50);//just outline of rect
            g.DrawEllipse(pen, 20, 20, 50, 50);
            Point[] points = { new Point(0,20), new Point(0,0), new Point(20,0) };
```

```
            g.DrawPolygon(pen, points);
        }
    }
}
```

122 - Drawing With Pen Class pt 2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _122___Drawing_With_Pen_Class_pt_2
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            Pen pen = new Pen(Color.Red,2);
            Graphics g = panel1.CreateGraphics();
            g.DrawArc(pen,20,20,100,100,0,180);
            g.DrawBezier(pen,new Point (20,20), new Point(30,60),new Point (70,40), new
Point (50,80));
            g.DrawLine(pen, new Point(0,0), new Point(100,100));
        }


    }
}
```

123 - Drawing Strings Text

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _123___Drawing_Strings_Text
{
    public partial class Form1 : Form
    {
        public Form1()
        {
```

```
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            SolidBrush s = new SolidBrush(Color.Blue);
            Graphics g = panel1.CreateGraphics();
            FontFamily ff = new FontFamily("Arial");
            System.Drawing.Font font = new System.Drawing.Font(ff,50);//font size after
ff 50
            g.DrawString("Chris", font, s, new PointF(20, 20));
        }
    }
}
```

124 – LinearGradientBrush

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Drawing.Drawing2D;

namespace _124___LinearGradientBrush
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            LinearGradientBrush lgb = new LinearGradientBrush(new Point(20,20), new
Point(20,70),Color.Red, Color.Yellow);//second point to 70,20 to change gradiant
direction.
            Graphics g = panel1.CreateGraphics();
            g.FillRectangle(lgb,20,20,50,50);
            g.FillEllipse(lgb,20,20,50,50);
        }
    }
}
```

125 - Multiple Colors in a LinearGradientBrush

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
```

```
using System.Text;
using System.Windows.Forms;
using System.Drawing.Drawing2D;

namespace _125___Multiple_Colors_in_a_LinearGradientBrush
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            LinearGradientBrush lgb = new LinearGradientBrush(new Point(20,20),new
Point(20,70),Color.Black,Color.Red);
            Graphics g = panel1.CreateGraphics();
            ColorBlend cb = new ColorBlend();
            cb.Colors = new Color[] { Color.Black,Color.Blue,Color.White};
            //float array diff between two number be equal .5 between each number.
            cb.Positions = new float[] { 0, .5F,1F};//float array, postions center of
color, black,blue,white, F to convert to float.
            lgb.InterpolationColors = cb;
            g.FillRectangle(lgb,20,20,50,50);
        }
    }
}
```

126 - PathGradientBrush pt 1

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Drawing.Drawing2D;

namespace _126___PathGradientBrush_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            GraphicsPath gp = new GraphicsPath();
            gp.AddEllipse(20,20,50,50);
            PathGradientBrush pgb = new PathGradientBrush(gp);
            pgb.CenterColor = Color.Red;
            pgb.SurroundColors = new Color[] {Color.Yellow };
```

```
            Graphics g = panel1.CreateGraphics();
            g.FillEllipse(pgb,20,20,50,50);//creates like a 3d ball.

        }
    }
}
```

127 - PathGradientBrush pt 2

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Drawing.Drawing2D;

namespace _127___PathGradientBrush_pt_2
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void panel1_Click(object sender, EventArgs e)
        {
            ////GraphicsPath gp = new GraphicsPath();
            ////Point[] points = { new point(20,20), new Point(20,70), new Point(70,20)};
            ////gp.AddPolygon(points);
            ////PathGradientBrush pgb = new PathGradientBrush(gp);
            ////pgb.CenterColor = Color.White;
            ////pgb.SurroundColors = new Color[] { Color.Black};
            ////Graphics g = panel1.CreateGraphics();
            ////g.FillPolygon(pgb,points);

            GraphicsPath gp = new GraphicsPath();
            Rectangle r = new Rectangle(20, 20, 50, 50);
            gp.AddRectangle(r);
            PathGradientBrush pgb = new PathGradientBrush(gp);
            pgb.CenterColor = Color.White;
            pgb.SurroundColors = new Color[] { Color.Black };
            Graphics g = panel1.CreateGraphics();
            g.FillRectangle(pgb, r);


        }
    }
}
```

128 - 132 Project 2 Paint Program pt 1

```
using System;
```

```
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _128___Project_2_Paint_Program_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
            g = panel1.CreateGraphics();//in constructor as soon form created.
        }
        bool canPaint = false;
        Graphics g;
        private void panel1_MouseDown(object sender, MouseEventArgs e)
        {
            canPaint = true;
            if (drawSquare) {
                SolidBrush s = new SolidBrush(toolStripButton1.ForeColor);
                g.FillRectangle(s, e.X, e.Y, Convert.ToInt32(toolStripTextBox2.Text),
Convert.ToInt32(toolStripTextBox2.Text));
                canPaint = false;
                drawSquare = false;
            }
            else if (drawRectangle) {
                SolidBrush s = new SolidBrush(toolStripButton1.ForeColor);
                g.FillRectangle(s, e.X, e.Y, Convert.ToInt32(toolStripTextBox2.Text) * 2,
Convert.ToInt32(toolStripTextBox2.Text));
                canPaint = false;
                drawRectangle = false;
            }
            else if (drawCircle){
                SolidBrush s = new SolidBrush(toolStripButton1.ForeColor);
                //g.DrawEllipse(s, e.X, e.Y, 50, 50);
                canPaint = false;
                drawCircle = false;
            }
        }

        private void panel1_MouseUp(object sender, MouseEventArgs e)
        {
            canPaint = false;
            prevX = null;
            prevY = null;
        }
        int? prevX = null;
        int? prevY = null;

        private void panel1_MouseMove(object sender, MouseEventArgs e)
        {
            if (canPaint)
            {
                //SolidBrush s = new SolidBrush(Color.Black);
                //g.FillEllipse(s,e.X,e.Y, Convert.ToInt32(toolStripTextBox1.Text),
Convert.ToInt32(toolStripTextBox1.Text));
```

```
                Pen pen = new Pen(toolStripButton1.ForeColor,
float.Parse(toolStripTextBox1.Text));
                g.DrawLine(pen, new Point(prevX ?? e.X, prevY ?? e.Y), new Point(e.X,
e.Y));
                prevX = e.X;
                prevY = e.Y;
            }
        }

        private void toolStripButton1_Click(object sender, EventArgs e)
        {
            ColorDialog cd = new ColorDialog();
            if (cd.ShowDialog() == DialogResult.OK)
            {
                toolStripButton1.ForeColor = cd.Color;


            }
        }

        private void toolStripButton2_Click(object sender, EventArgs e)
        {
            g.Clear(panel1.BackColor);
        }

        private void toolStripButton3_Click(object sender, EventArgs e)
        {
            ColorDialog cd = new ColorDialog();
            if (cd.ShowDialog() == DialogResult.OK)
            {
                toolStripButton3.ForeColor = cd.Color;
                panel1.BackColor = cd.Color;
            }
        }
        bool drawSquare = false;
        private void squareToolStripMenuItem_Click(object sender, EventArgs e){
            drawSquare = true;
        }

        bool drawRectangle = false;
        private void rectangelToolStripMenuItem_Click(object sender, EventArgs e){
            drawRectangle = true;
        }
        bool drawCircle = false;
        private void circleToolStripMenuItem_Click(object sender, EventArgs e)
        {
            drawCircle = true;
        }

        private void panel1_DragDrop(object sender, DragEventArgs e)
        {
            string[] imagePaths = (string[])e.Data.GetData(DataFormats.FileDrop);
            foreach (string path in imagePaths) {
                g.DrawImage(Image.FromFile(path), new Point(0,0));
            }
        }

        private void panel1_DragEnter(object sender, DragEventArgs e)
        {
            e.Effect = DragDropEffects.All;
        }
```

```
    }
}
```

133 – 138 Making Controls pt1- pt6

myButton.cs

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Drawing;
using System.Data;
using System.Linq;
using System.Text;
using System.Windows.Forms;


//http://www.youtube.com/watch?v=6WMT1jojpZs

namespace _133___Making_Controls_pt_1
{
    public partial class myButton : UserControl//inherites from usercontrol class, we
want to override
    {
        //1) project choose 'add windows forms...' and choose 'user control'
        // opens a design window.
        // size of cotrol when user drops to his form.
        //2) click view code.
        public myButton()
        {
            InitializeComponent();
        }
        //type 'override onpaint' will type out the below.
        string text = "";
        protected override void OnPaint(PaintEventArgs e)//note protected
        {
            DrawButton(Color.FromKnownColor(KnownColor.Control));
        }

        //3) do 'build' to see test label
        //set property getter setter , build to show 'buttonText' in prop
        public string buttonText {
            get { return text; }
            set { text = value; }
        }

        private void myButton_MouseHover(object sender, EventArgs e)
        {
            Color myColor = Color.FromArgb(255,
Color.FromKnownColor(KnownColor.Control).R -30,
Color.FromKnownColor(KnownColor.Control).R-5, 255);
            DrawButton(myColor);
        }

        void DrawButton(Color c) {
```

```
            SolidBrush s = new
SolidBrush(Color.FromKnownColor(KnownColor.Control));//background color matches
forecolor.
            Graphics g = this.CreateGraphics();//this refers to the control.
            g.FillRectangle(s, 0, 0, this.Width, this.Height);
            s.Color = Color.FromArgb(255, c.R - 13, c.G - 13, c.B - 13);
            //4) use math to center things.
            g.FillRectangle(s, 0, this.Height / 2, this.Width, this.Height / 2);
            PointF fpoint = new Point((this.Width / 2) - (text.Length), (this.Height / 2)
- (text.Length));//to draw in center h,w.
            FontFamily ff = new FontFamily("Arial");
            Font f = new System.Drawing.Font(ff, 8);
            g.DrawString(text, f, s, fpoint);
            s.Color = Color.Black;
        }

        private void myButton_Leave(object sender, EventArgs e)
        {
            DrawButton(Color.FromKnownColor(KnownColor.Control));
        }

        private void myButton_MouseEnter(object sender, EventArgs e)
        {
            Color myColor = Color.FromArgb(255,
Color.FromKnownColor(KnownColor.Control).R - 30,
Color.FromKnownColor(KnownColor.Control).R - 5, 255);
            DrawButton(myColor);
        }
    }
}
```

139 - Inheriting From Existing Controls

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _133___Making_Controls_pt_1
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void userControl11_Click(object sender, EventArgs e)
        {
            MessageBox.Show("I am adam");

        }
```

```
    }
}
```

myButton.cs

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Drawing;
using System.Data;
using System.Linq;
using System.Text;
using System.Windows.Forms;


//http://www.youtube.com/watch?v=6WMT1jojpZs

namespace _133___Making_Controls_pt_1
{
    public partial class myButton : Button//inherites from usercontrol class, we want to
override
    {
        public override string Text
        {
            get
            {
                return base.Text;
            }
            set
            {
                if (value == "Adam")
                {
                    MessageBox.Show("You are not authorized to use that name.");
                    base.Text = "Usercontrol";
                    return;
                }
                base.Text = value;
            }
        }
        protected override void OnClick(EventArgs e)
        {
            MessageBox.Show("Test");
            base.OnClick(e);
        }
    }
}
```

140 Splash Screen.

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _140___Splash_Screen
{
    public partial class Form1 : Form
```

```
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void Form1_FormClosed(object sender, FormClosedEventArgs e)
        {
            Application.Exit();

        }
    }
}
```

splashScreen.cs

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace _140___Splash_Screen
{
    //Classes Program.cs
    //Application.Run(new splashScreen()); change from new form1 to new splashScreen()
    //Class splashScreen.cs

    //dock picture box to form.

    public partial class splashScreen : Form
    {
        public splashScreen()
        {
            InitializeComponent();
        }
        Timer t;
        private void splashScreen_Shown(object sender, EventArgs e)
        {
            t = new Timer();
            t.Interval = 2000;
            t.Start();
            t.Tick += new EventHandler(t_Tick);
        }
        void t_Tick(object sender, EventArgs e)
        {
            t.Stop();
            Form1 f = new Form1();
            f.Show();
            this.Hide();
        }
    }
}
```

141 Making a DLL

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using MyDll.Clients;// from the dll you created will give you access to dll class.

namespace _141___Making_a_DLL
{
    //dll dynamic link library
    //put all your namespace in dll to share
    //people can't see into dll.
    //new project class library

    //create dll build and save.
    //open solution explorer and rightclick 'choose add reference'
    //will add mydll that you created to reference folder.
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }
    }
}
```

142 Internal Access Modifier

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace _142___Internal_Access_Modifier
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
            //can't access internal classes
        }
    }
}
```

Class1.cs

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
//internal access modifier
//can only access something within the same project.

namespace _142___Internal_Access_Modifier
{
    namespace myDLL
    {
        internal class Client
        {
            internal string Name//if make the above class public and only access Name in
this class.
            {
                get;
                set;
            }
            internal int Height = 25;// only accesss in project.
            public int Age
            {
                get;
                set;
            }

            public string Email
            {
                get;
                set;
            }

        class MyClass
        {
            void myMethod()
            {
                Client.MyClass c = new MyClass();
                //icon shows envelope in intellisense to tell you it is internal.
            }
        }
        }
    }
}
```

143 Comments and Descriptions

Class1.c

```
using System;
using System.Collections.Generic;

using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace _143___Comments_and_Descriptions
{
```

```
    namespace Clients
    {
        class Class1
        {
            /// <summary>//doesn't work in 2012 version.
            /// for summary
            /// </summary>

            //line comments
            /*
             *
             *
             *
             * large or multi lines of code
             *
             *
             *
             */
        }
        //public time ()
        //{
        //this.code;
        //}
    }
}
//Class1.
```

144 Goto Keyword and Regions

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace _144___Goto_Keyword_and_Regions
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            string chris = "blah";
            switch (chris)
            {
                case "chris":
                    MessageBox.Show("Hello");//goes here last because of goto
                    break;
                default:
                    MessageBox.Show("the default.");
                    goto case "chris";

            }
```

```
            goto myCode;
        myCode:
            {
                MessageBox.Show("Test");
            }

            //can create regions.
            #region myRegion
            /* can hide
             * bunch of code
             */
            #endregion

        }
    }
}
```

145 Capturing Screen

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Threading;//for motion of images

namespace _145___Capturing_Screen
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //for single image without the threading

            Bitmap b = new Bitmap(Screen.PrimaryScreen.WorkingArea.Width,
Screen.PrimaryScreen.WorkingArea.Height);//create total capture
            Graphics g = Graphics.FromImage(b);
            g.CopyFromScreen(Point.Empty, Point.Empty,
Screen.PrimaryScreen.WorkingArea.Size);
            pictureBox1.Image = b;

        // for multi capture.
        //Thread t = new Thread(threadedCode);
        //t.Start();


        }
        //void threadedCode()
        //{
        //    for (; ; )
        //    {
```

```
        //        Bitmap b = new Bitmap(Screen.PrimaryScreen.WorkingArea.Width,
Screen.PrimaryScreen.WorkingArea.Height);//create total capture
        //        Graphics g = Graphics.FromImage(b);
        //        g.CopyFromScreen(Point.Empty, Point.Empty,
Screen.PrimaryScreen.WorkingArea.Size);
        //        pictureBox1.Image = b;
        //    }
        //}
    }
}
```

146 Making Keyboard Shortcuts

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace _146___Making_Keyboard_Shortcuts
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void Form1_KeyDown(object sender, KeyEventArgs e)
        {
            //set keypreview of form to true
            //use this event
            if (e.Control && e.KeyCode.ToString() == "A") ;//control a
            {
                MessageBox.Show("control-A");
            }
        }

        private void textBox1_KeyDown(object sender, KeyEventArgs e)
        {
            if (e.Alt && e.KeyCode.ToString() == "F");//alt- a
            {
                MessageBox.Show("alt-f");
            }
        }
    }
}
```

147 Checking Controls on Leave

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
```

```
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace _147___Checking_Controls_on_Leave
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
            comboBox1.SelectedIndex = 0;
        }

        private void textBox1_Leave(object sender, EventArgs e)
        {
            if (textBox1.Text == "")
            {
                MessageBox.Show("You must provide a name!");
                textBox1.Select();
            }
        }

        private void comboBox1_Leave(object sender, EventArgs e)
        {
            if (comboBox1.SelectedIndex == 0)
            {
                MessageBox.Show("You must select a country!");
                comboBox1.Select();//user back to combobox
            }
        }
    }
}
```

148 - 151 Overloading Operators pt 1-4

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace _148___151_Overloading_Operators_pt_1_4
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            Item item1 = new Item();
            item1.Price = 4;
```

```
            Item item2 = new Item();
            item2.Price = 6;
            Item item3 = item1 + item2;
            MessageBox.Show(item3.Price.ToString());

            //lesson 02
            Item item4 = new Item();
            item4.Price = 5;
            Item item5 = new Item();
            item5.Price = 5;
            if (item3 == item4) MessageBox.Show("equal");

            //lesson 03
            Item item8 = new Item();
            item8.Price = 3;
            Item item9 = new Item();
            item9.Price = 6;
            if (item8 > item9) MessageBox.Show("greater than");

            //lesson 04
            Item i = new Item();
            i.Price = 2;
            i++;
            MessageBox.Show(i.Price.ToString());
        }
    }
    class Item
    {
        public int Price
        {
            get;
            set;
        }
        //overload plus opperator
        public static Item operator +(Item i1, Item i2)//return type Item
        {
            Item i3 = new Item();
            i3.Price = i1.Price + i2.Price;
            return i3;
        }

        //lesson 02
        //overloading ==
        public static bool operator ==(Item i4, Item i5)
        {
            return (i4.Price == i4.Price) ? true : false;//tenary if
        }
        public static bool operator !=(Item i4, Item i5)
        {
            return (i4.Price != i5.Price) ? true : false;//tenary if
        }

        //lesson 03 overloading
        public static bool operator <(Item item8, Item item9)
        {
            return (item8.Price < item9.Price) ? true : false;
        }

        public static bool operator >(Item item8, Item item9)
        {
            return (item8.Price > item9.Price) ? true : false;
```

```
        }

        //lesson 04 overloading ++ --
        public static Item operator ++(Item item)
        {
            Item i = new Item();//can't return int so need to do below
            i.Price = item.Price + 1;
            return i;
            //didn't have to overload the -- operator
        }

        public static Item operator --(Item item)
        {
            Item i = new Item();//can't return int so need to do below
            i.Price = item.Price - 1;
            return i;

        }
}
```

152 Making Conversion Operators

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace _152___Making_Conversion_Operators
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            //Item i = (Item)3; //Explicit

            Item item = 3; // auto converts Implicit

            MessageBox.Show(item.Price.ToString());
        }
    }

    class Item
    {
        //explict user has to do something.
        //implict done automatic.
        public int Price
        {
            get;
            set;
```

```
        }

        //public static explicit operator Item(int itemPrice)
        //{
        //    Item i = new Item();
        //    i.Price = itemPrice;
        //    return i;
        //}

        public static implicit operator Item(int itemPrice)
        {
            Item i = new Item();
            i.Price = itemPrice;
            return i;
        }
    }
}
```