.NET PRACTICAL

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AIM: INTRODUCTION TO C#

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Flow Control

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- Loop(for, while, dowhile, foreach)
- Jump(goto, break, continue, return)

Eumerations

Passing Arguments

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

namespace aim
{
   class Program
   {
                static int newint=100;
                public enum TimeOfDay
                {
                Morning = 0,
                Afternoon = 1,
```

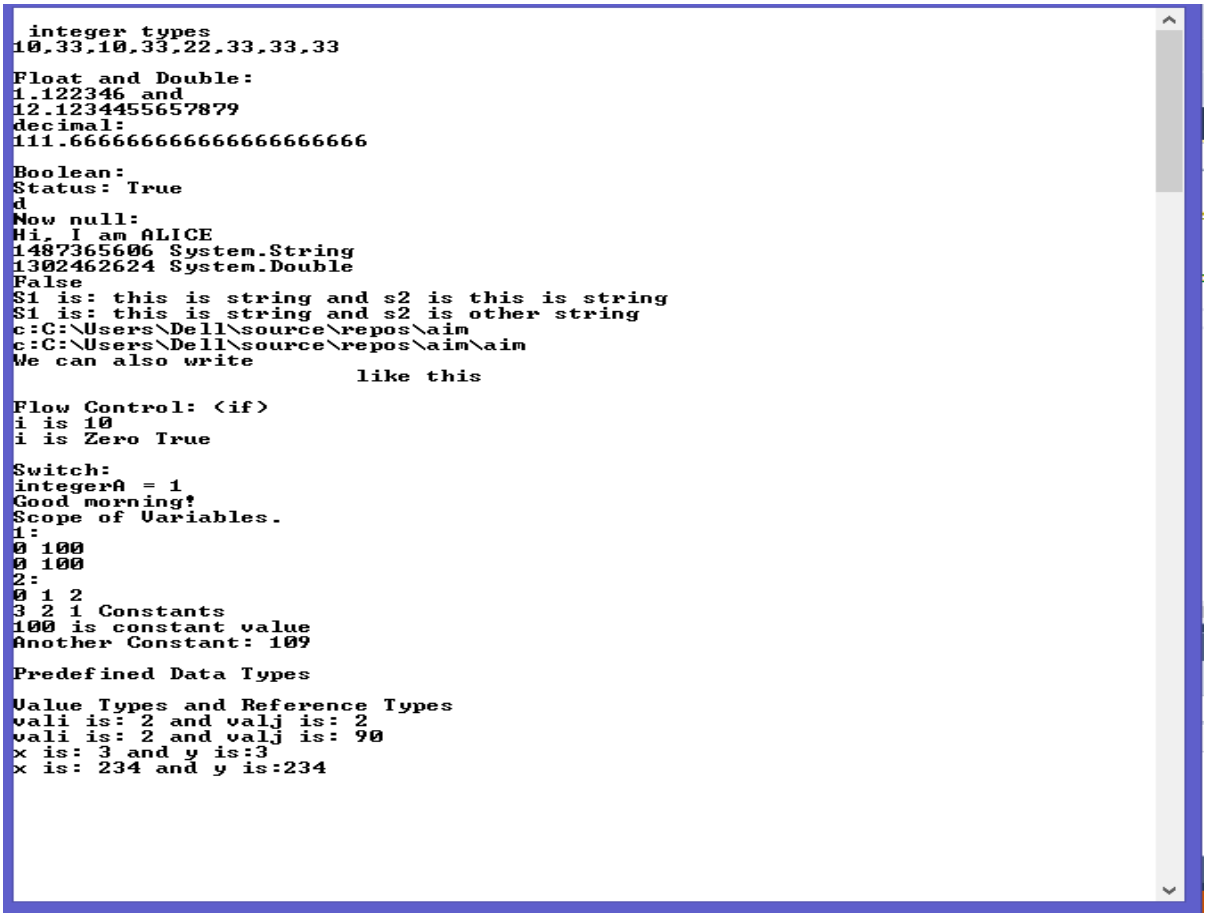
```
                Evening = 2
                }
    public static void Main(string[] args)
    {
       Console.WriteLine("\n integer types");
       sbyte sb = 10;
       short s = 33;
       int i = 10;
       long l = 33L;
       byte b = 22;
       ushort us = 33;
       uint ul = 33u;
       ulong ulo = 33ul;
       Console.WriteLine("{0},{1},{2},{3},{4},{5},{6},{7}", sb, s, i, l, b, us, ul, ulo);
       float f = 1.122345656767f;
       double d = 12.1234455657878797;
       Console.Write("\nFloat and Double:\n");
       Console.WriteLine("{0} and \n{1}", f, d);
                        decimal dec=111.66666666666666666666M;
                        Console.WriteLine("decimal:\n{0} ",dec);
                        Console.WriteLine("\nBoolean:");
                        bool boolean =true;
                        Console.WriteLine("Status: " + boolean);
     //  Console.ReadLine();
                        char character ='d';
                        Console.WriteLine(character);
                        character = '\0';
                        Console.WriteLine("Now null: " + character);
                        object o1 = "Hi, I am ALICE";
                        object o2 = 15.3454365;
                        string strObj = o1 as string;
                        Console.WriteLine(strObj);
```

```
Console.WriteLine(o1.GetHashCode() + " " + o1.GetType());
Console.WriteLine(o2.GetHashCode() + " " + o2.GetType());
Console.WriteLine(o1.Equals(o2));
string s1, s2;
s1 = "this is string";
s2 = s1;
Console.WriteLine("S1 is: {0} and s2 is {1}", s1, s2);
s2 = "other string";
Console.WriteLine("S1 is: {0} and s2 is {1}", s1, s2);
s1 = "c:C:\\Users\\Dell\\source\\repos\\aim";
Console.WriteLine(s1);
s1 = @"c:C:\Users\Dell\source\repos\aim\aim";
Console.WriteLine(s1);
s1 = @"We can also write
like this";
Console.WriteLine(s1);
bool isZero;
Console.WriteLine("\nFlow Control: (if)\ni is " + i);
if (i == 10)
{
isZero = true;
Console.WriteLine("i is Zero {0}",isZero);
}
else
{
isZero = false;
Console.WriteLine("i is Non - zero");
}
int integerA = 1;
Console.WriteLine("\nSwitch:");
switch (integerA)
{
```

```
case 1:
Console.WriteLine("integerA = 1");
break;
case 2:
Console.WriteLine("integerA = 2");
//goto case 3;
break;
case 3:
Console.WriteLine("integerA = 3");
break;
default:
Console.WriteLine("integerA is not 1, 2, or 3");
break;}
WriteGreeting(TimeOfDay.Morning);
Console.WriteLine("Argument is: {0}",args[1]);

 void WriteGreeting(TimeOfDay timeOfDay)
{
switch (timeOfDay)
{
case TimeOfDay.Morning:
Console.WriteLine("Good morning!");
break;
case TimeOfDay.Afternoon:
Console.WriteLine("Good afternoon!");
break;
case TimeOfDay.Evening:
Console.WriteLine("Good evening!");
break;
default:
Console.WriteLine("Hello!");
break;
```

```
 }          }
                    Console.WriteLine("Scope of Variables.\n1:");
int newint=0;
                    int j;
for (/*int*/ j = 0; j < 2; j++) //removing comment from for loop will raise error
{
   //int j;
   //uncomment above line to error "A local variable named 'j' cannot be declared in this
   //scope because it would give a different meaning to 'j', which is already
   //used in a 'parent or current' scope to denote something else"
   Console.Write("{0} {1}\n", newint, Program.newint);
}
                    Console.WriteLine("2:");
for (int k = 0; k < 3; k++)
{
   Console.Write("{0} ", k);
}//Scope of k ends here
Console.Write("\n");
//Console.Write(k);
//uncomment above line to see error "The name 'k' does not exist in the current context"
for (int k = 3; k > 0; k--)
{
   Console.Write("{0} ", k);
}//scope of k ends here again

Console.WriteLine("Constants");
                     const int valConst = 100; // This value cannot be changed.
Console.WriteLine("{0} is constant value", valConst);
//valConst = 45;
//uncomment above line to see error "The left-hand side of an assignment must be a variable,
property or indexer"

//const only allow constant variables into the expression
```

```
        const int valConst2 = valConst + 9 /* + j*/;
        //remove comments from the above line to see error "The expression being assigned to 'valConst2' must be constant"
        Console.WriteLine("Another Constant: {0}", valConst2);


        Console.WriteLine("\nPredefined Data Types\n\nValue Types and Reference Types");
        //Value Types
        int vali = 2, valj = vali;
        Console.WriteLine("vali is: {0} and valj is: {1}", vali, valj);
        valj = 90;
        Console.WriteLine("vali is: {0} and valj is: {1}", vali, valj);
        //Referece Types
        Vector x, y;
        x = new Vector();
        x.value = 3;
        y = x;
        Console.WriteLine("x is: {0} and y is:{1}", x.value, y.value);
        y.value = 234;
        Console.WriteLine("x is: {0} and y is:{1}", x.value, y.value);
        //If a variable is a reference, it is possible to indicate that it does not refer to any object by setting its value to null:
        y = null;
        //Console.Write("Value for y is: " + y.value);
        //uncomment above line to see runtime exception "System.NullReferenceException: Object reference not set to an instance of an object."
//CTS           }
                public class Vector
                {
                public int value;
                }
 }
}
```


integer types
10,33,10,33,22,33,33,33
Float and Double:
1.122346 and
12.1234455657879
decimal:
111.66666666666666666666
Boolean:
Status: True
d
Now null:
Hi, I am ALICE
1487365606 System.String
1302462624 System.Double
False
S1 is: this is string and s2 is this is string
S1 is: this is string and s2 is other string
c:C:\Users\Dell\source\repos\aim
c:C:\Users\Dell\source\repos\aim\aim
We can also write
like this
Flow Control: (if)
i is 10
i is Zero True
Switch:
integerA = 1
Good morning!
Scope of Variables.
1:
0 100
0 100
2:
0 1 2
3 2 1 Constants
100 is constant value
Another Constant: 109
Predefined Data Types
Value Types and Reference Types
vali is: 2 and valj is: 2
vali is: 2 and valj is: 90
x is: 3 and y is:3
x is: 234 and y is:234

PRACTICAL:2

Program 1

Write console based program in code behind language VB or C# to print following pattern.

@ @ @ @ @

@ @ @ @

@ @ @

@ @

@

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace practical2
{
   class Program
   {
   static void Main(string[] args)
      {
         for(int i=5;i>0;i--)
         {
            for (int j = i; j > 0; j--)
            {
               Console.Write("@");
            }
            Console.WriteLine(" ");
         }
         Console.ReadKey();
      }
   }
}
```

Program 2

Write console based program in code behind language VB or C# to print following pattern.

1

1 2

1 2 3

1 2 3 4

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

namespace practical2._1
{
    class Program
    {
        static void Main(string[] args)
```

```
        {
            for(int i=1;i<=5;i++)
            {
                for(int j=i;j>0;j--)
                {
                    Console.Write("{0}",i);
                }
                Console.WriteLine("");
            }
            Console.ReadKey();
        }
    }
}
```

Program 3

Write C# code to prompt a user to input his/her name and country name and then the output will be shown as an example below:

Hello Ram from country India

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

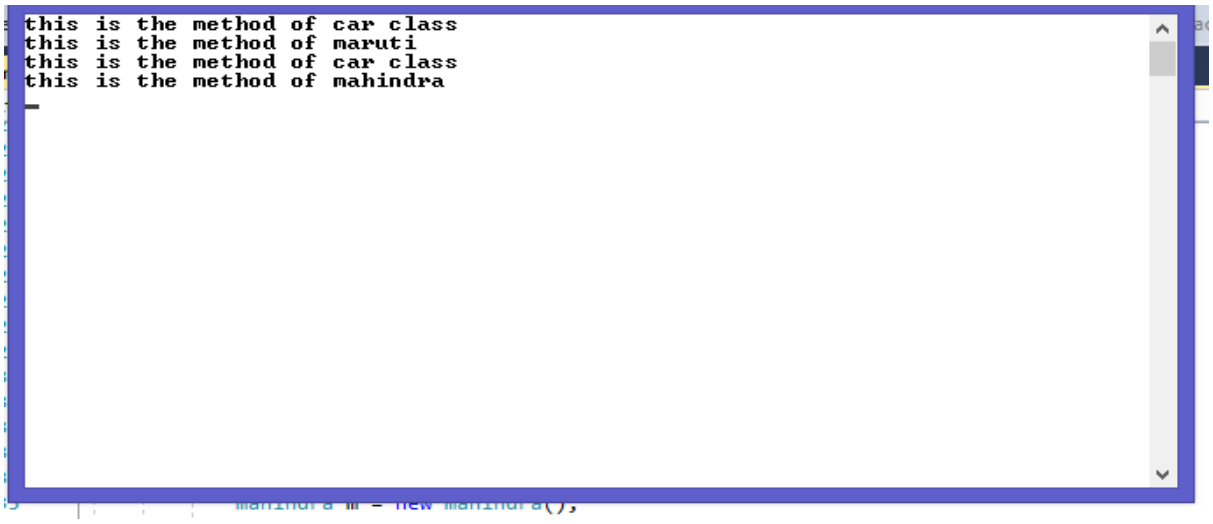
```
using System.Threading.Tasks;
namespace practical2._2
{
    class Program
    {
        static void Main(string[] args)
        {
            string name;
            string country;
            Console.WriteLine("enter your name:");
            name=Console.ReadLine();
            Console.WriteLine("enter your country:");
            country = Console.ReadLine();
            Console.WriteLine("hello {0} from country {1}",name,country);
            Console.ReadKey();
        }
    }
}
```

Program 4

What is inheritance? Create C# console application to define Car class and derive Maruti and Mahindra from it to demonstrate inheritance.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace practical2._3
{
    class car
    {
        public void Method1()
        {
            Console.WriteLine("this is the method of car class");
        }
    }
    class maruti:car
    {
        public void method2()
        {
            Console.WriteLine("this is the method of maruti");
            Console.ReadKey();
        }
    }
    class mahindra:car
    {
        public void method3()
        {
```

```
            Console.WriteLine("this is the method of mahindra");
        }
    }
    class Program
    {
        static void Main(string[] args)
        {
            mahindra m = new mahindra();
            maruti m1 = new maruti();
            m.Method1();
            m1.Method1();
            Console.ReadKey();
        }
    }
}
```



PRACTICAL:3

AIM: Method & constructor overloading

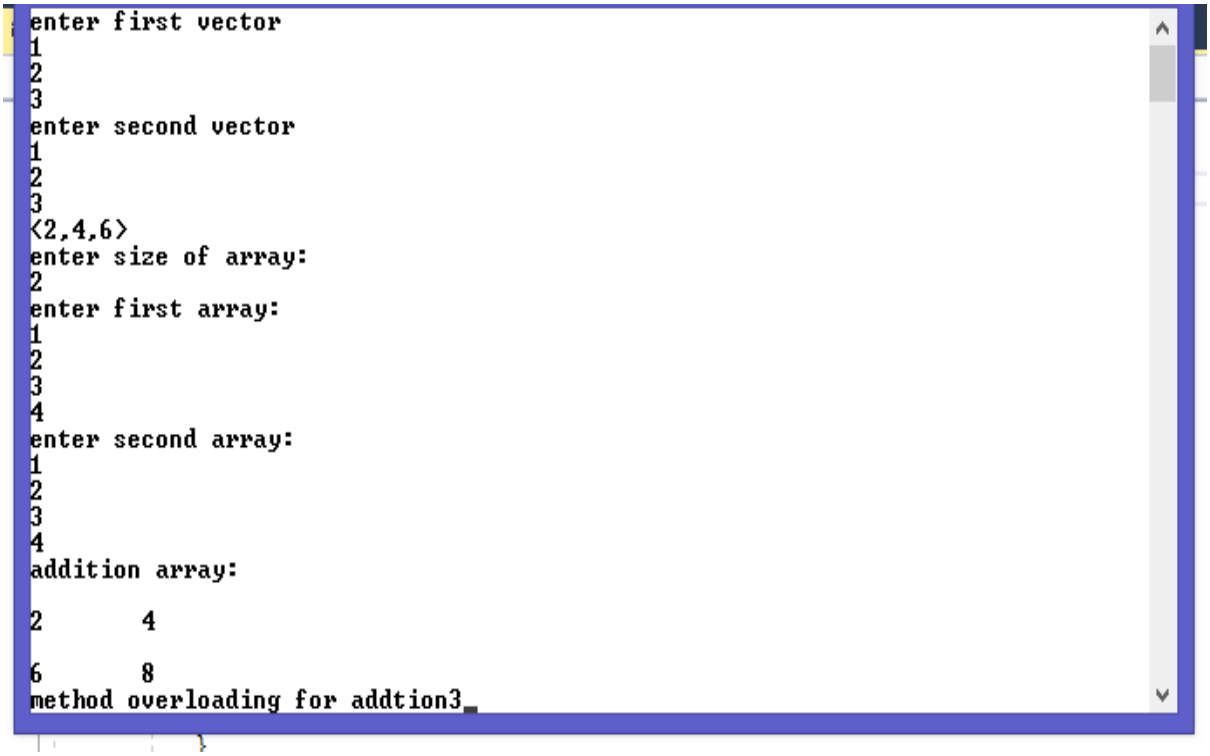
Program 1

Write a c# program to add two integers, two vectors and two metric using method overloading.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace p3
{
   public class Add
   {
      public void add()
      {
         int[,] m1 = new int[50, 50];
         int[,] m2 = new int[50, 50];
         int[,] m3 = new int[50, 50];
         Console.WriteLine("enter size of array:");
         int size = Convert.ToInt32(Console.ReadLine());
         Console.WriteLine("enter first array:");
         for (int i = 0; i < size; i++)
         {
            for (int j = 0; j < size; j++)
            {
               m1[i, j] = Convert.ToInt32(Console.ReadLine());
            }
         }
         Console.WriteLine("enter second array:");
         for (int i = 0; i < size; i++)
         {
```

```
            for (int j = 0; j < size; j++)
            {
                m2[i, j] = Convert.ToInt32(Console.ReadLine());
            }
        }

        for (int i = 0; i < size; i++)
        {
            for (int j = 0; j < size; j++)
            {
                m3[i, j] = m1[i, j] + m2[i, j];
            }
        }
        Console.WriteLine("addition array:");
        for (int i = 0; i < size; i++)
        {
            Console.Write("\n");
            for (int j = 0; j < size; j++)
            {
                Console.Write("{0}\t", m3[i, j]);
            }
            Console.Write("\n");
        }
    }
    public int add(int a, int b)
    {
        return (a + b);
    }
}
    public class Vector
    {
        public void add()
```

```
        {
            Console.WriteLine("enter first vector");
            int x = Convert.ToInt32(Console.ReadLine());
            int y = Convert.ToInt32(Console.ReadLine());
            int z = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("enter second vector");
            int x1 = Convert.ToInt32(Console.ReadLine());
            int y1 = Convert.ToInt32(Console.ReadLine());
            int z1 = Convert.ToInt32(Console.ReadLine());
            int x2 = x + x1;
            int y2 = y + y1;
            int z2 = z + z1;
            Console.WriteLine("<" + x2 + "," + y2 + "," + z2 + ">");

        }
    }
 class Program
  {
    static void Main(string[] args)
    {

        Add a1 = new Add();
        Vector v1 = new Vector();
        v1.add();
        a1.add();
        int res=a1.add(1, 2);
        Console.Write("method overloading for addtion{0}",res);
        Console.ReadLine();

    }
  }
}
```



Program 2

Write a c# program that create student object. Overload constror to create new instant with following details.

1. Name
2. Name, Enrollment
3. Name, Enrollment, Branch

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Reflection;
namespace p3a1
{
   class Program
   {
      public int ID { get; set; }
```

```
    public string Name { get; set; }
    String name, branch;
    int enrol;
    public Program(String name)
    {
       this.name = name;
       Console.WriteLine("constructor 1:" + name);
    }
    public Program(String name, int enrol)
    {
       this.name = name;
       this.enrol = enrol;
       Console.WriteLine("constructor 2:" + name + " " + enrol);

    }
    public Program(String name, int enrol, String branch)
    {
       this.name = name;
       this.enrol = enrol;
       this.branch = branch;
       Console.WriteLine("constructor 3:" + name + " " + enrol + " " + branch);

    }
    static void Main(string[] args)
    {
 Program p1 = new Program("bob");
       Program p2 = new Program("bob", 1);
       Program p3 = new Program("bob", 1, "computer");
              Console.ReadLine();

    }
  }
```

}


constructor 1:bob
constructor 2:bob 1
constructor 3:bob 1 computer

PRACTICAL:4

Create a c# program to find Methods, Properties and Constructors from class of running program.(Use Class from previous practical)

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

namespace p2
{
    class Reflection
    {
        static void Main()
        {
            Type T = Type.GetType("p2.Customer");
            MethodInfo[] methods = T.GetMethods();
            foreach (MethodInfo method in methods)
            {
                Console.WriteLine(method.ReturnType+ " " + method.Name);
            }

            PropertyInfo[] properties = T.GetProperties();

            Console.WriteLine("\nProperties");
            foreach (PropertyInfo property in properties)
            {
                Console.WriteLine(property.PropertyType+ " " + property.Name);
            }

            Console.WriteLine("\nConstructors");
```

```
            ConstructorInfo[] constructors = T.GetConstructors();
            foreach (ConstructorInfo constructor in constructors)
            {
                Console.WriteLine(constructor.ToString());
            }
        }
}
class Customer
{
        public int ID { get; set; }
        public string Name { get; set; }
        public Customer(int ID, string Name)
        {
            this.ID = ID;
            this.Name = Name;
        }
```

PRACTICAL:5

AIM : File Handling

Program 1:

Write a C# program to copy data from one file to another using StreamReader and StreamWriter class.

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

namespace p2
{
    class P4_1
    {
        public static void Main(){
            string f1 = @"f1.txt";
            string f2 = @"f2.txt";
            using (StreamReader reader = new StreamReader(f1))
            using (StreamWriter writer = new StreamWriter(f2))
                writer.Write(reader.ReadToEnd());
        }
    }
}
```

Program 2:

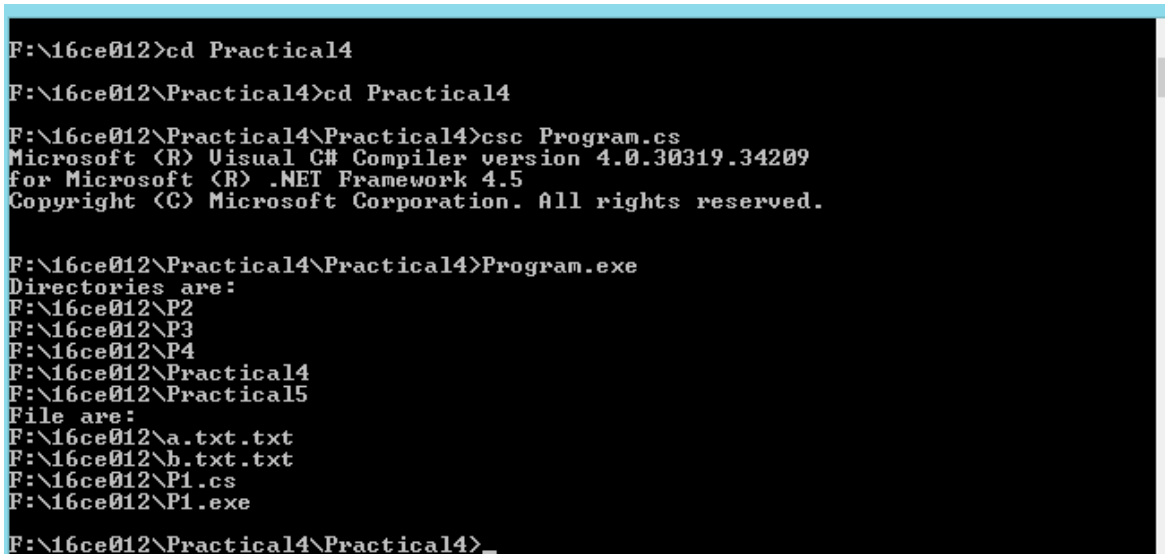
Write a C# Program to Read Lines from a File until the End of File is reached.

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.IO;
namespace P2

{
    public class CopyFile
    {
        public void copyFile(string f1, string f2)
        {
            using (StreamReader reader = new StreamReader(f1))
            using (StreamWriter writer = new StreamWriter(f2))
            {
                string line = null;
                while ((line = reader.ReadLine()) != null)
                    writer.WriteLine(line);
            }
        }
    public class mmain{
        public static void Main(){
            CopyFile cp = new CopyFile();
            string f1 = @"E:\Sem-6\VS\p2\p2\f1.txt";
            string f2 = @"E:\Sem-6\VS\p2\p2\f2.txt";
            cp.copyFile(f1,f2);

        }
    }
}
```

Program 3:

Write a C# Program to List Files in a Directory.

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

namespace p2
{
    class ListFile
    {
        public static void Main() {
            string[] Directories = Directory.GetDirectories(@"E:\Sem-6\VS");
            foreach (string dir in Directories)
                Console.WriteLine(dir);
            string[] files = Directory.GetFiles(@"E:\Sem-6\VS");
            foreach (string file in files)
                Console.WriteLine(file);

            Console.ReadKey();

        }
    }
}
```


F:\16ce012>cd Practical4
F:\16ce012\Practical4>cd Practical4
F:\16ce012\Practical4\Practical4>csc Program.cs
Microsoft (R) Visual C# Compiler version 4.0.30319.34209
for Microsoft (R) .NET Framework 4.5
Copyright (C) Microsoft Corporation. All rights reserved.
F:\16ce012\Practical4\Practical4>Program.exe
Directories are:
F:\16ce012\P2
F:\16ce012\P3
F:\16ce012\P4
F:\16ce012\Practical4
F:\16ce012\Practical5
File are:
F:\16ce012\a.txt.txt
F:\16ce012\b.txt.txt
F:\16ce012\P1.cs
F:\16ce012\P1.exe
F:\16ce012\Practical4\Practical4>