Name : Sarvesh Sawant Class: SYIT
Subject: ASP.NET Date: 12/12/23

# Practical 2: Working with object oriented C# and ASP.NET

Practical 2A

Aim: Create a simple application to perform following operations

i) Function Overloading:

write a c# program which has 2 methods “add” and “con” which can add two number and concatenate two strings which are taken as input from the user and display the output

Code:

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

namespace Prac2A
{
    class Overloading
    {
        public void add(int a, int b)
        {
            Console.WriteLine("add of two number: " + a + " and " + b + " is: " + (a +
b));
        }

        public  void add(string str1, string str2)
        {
            Console.WriteLine("add of two number: " + str1 + " and " + str2 + " is: " +
(str1 + str2));
        }
    }
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter two number: ");
            int a = Convert.ToInt32(Console.ReadLine());
            int b = Convert.ToInt32(Console.ReadLine());

            Console.Write("Enter two string: ");
            string str1 = Console.ReadLine();
            string str2 = Console.ReadLine();

            Overloading obj1 = new Overloading();
            obj1.add(a, b);
            obj1.add(str1, str2);
            Console.ReadLine();
        }
    }
}
```

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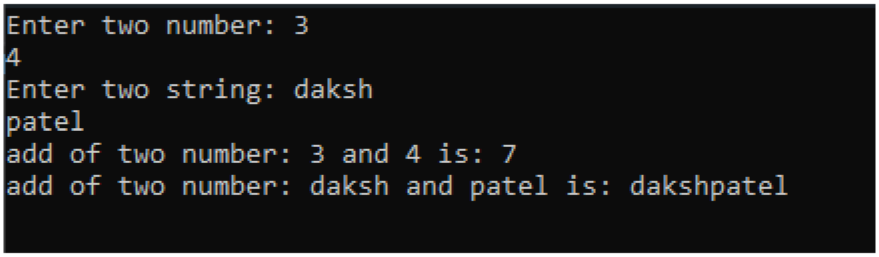
Output:



```
Enter two number: 3
4
Enter two string: daksh
patel
add of two number: 3 and 4 is: 7
add of two number: daksh and patel is: dakshpatel
```

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ii) Constructor overloading

Write a C# program which has 2 constructors which can swap two integers or two floating number which are taken as input from the user and display the output

Code:

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

namespace Prac2A
{
    class Swap
    {
        Swap(int n, int m)
        {
            Console.WriteLine("before swap: " + n + " " + m);
            int t;
            t = n;
            n = m;
            m = t;
            Console.WriteLine("After swap: " + n + " " + m);
        }

        Swap(double f1, double f2)
        {
            Console.WriteLine("Before swap: " + f1 + " " + f2);
            double f;
            f = f1;
            f1 = f2;
            f2 = f;
            Console.WriteLine("After swap: " + f1 + " " + f2);
        }

        static void Main(string[] args)
        {
            Console.Write("Enter two interger: ");
            int n = Convert.ToInt32(Console.ReadLine());
            int m = Convert.ToInt32(Console.ReadLine());

            Console.Write("Enter two interger: ");
            double f1 = Convert.ToDouble(Console.ReadLine());
            double f2 = Convert.ToDouble(Console.ReadLine());

            Swap obj1 = new Swap(n, m);
            Swap obj2 = new Swap(f1, f2);
            Console.Read();
        }
    }
}
```

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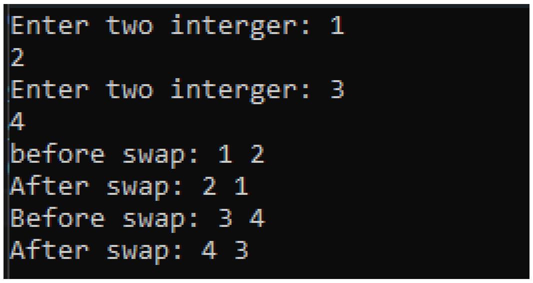
Output:



```
Enter two interger: 1
2
Enter two interger: 3
4
before swap: 1 2
After swap: 2 1
Before swap: 3 4
After swap: 4 3
```

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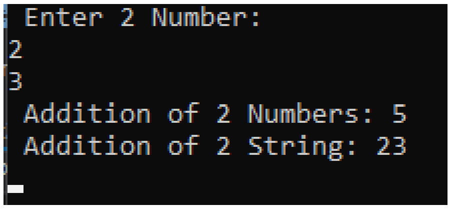
iii) Interfaces

Code:

```
using System;
namespace Prac2A
{
    interface calculator
    {
        void add(int a, int b);
    }
    public class DemoNum : calculator
    {
        public void add(int a, int b)
        {
            Console.WriteLine(" Addition of 2 Numbers: " +(a + b));
        }
    }
    public class DemoString : calculator
    {
        public void add(int a, int b)
        {
            Console.WriteLine(" Addition of 2 String: " +a + b);
        }
    }
    public class interfaces
    {
        public static void Main(string[] arg)
        {
            Console.WriteLine(" Enter 2 Number: ");
            int a = Convert.ToInt32(Console.ReadLine());
            int b = Convert.ToInt32(Console.ReadLine());
            calculator c = new DemoNum();
            calculator c1 = new DemoString();
            c.add(a, b);
            c1.add(a, b);
            Console.ReadLine();
        }
    }
}
```

Output:



```
 Enter 2 Number:
2
3
 Addition of 2 Numbers: 5
 Addition of 2 String: 23
```

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iv) Inheritance (all types)

Code:

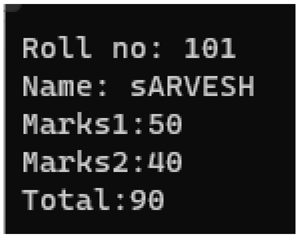
```
namespace Prac2B

{
class Program
   {
      static void Main(string[] args)
      {
         Result r1 = new Result(101, "sARVESH", 50, 40);
         r1.display();
      }
   }



}
```

```
namespace Prac2B
{
   internal class Student
   {
      int roll_no;
      string name;
      public Student(int roll_no, string name)
      {
         this.roll_no = roll_no;
         this.name = name;
      }
      public Student() { }
      public void display()
      {
         Console.WriteLine("Roll no: " + roll_no);
         Console.WriteLine("Name: " + name);
      }
   }
}
```

```
namespace Prac2B
{
   internal class Result:Test
   {
      int total;
      public Result(int roll_no,string name,int marks1,int marks2)
```

```
         :base(roll_no, name, marks1,marks2)
      {
         total = getMarks1() + getMarks2();
      }
      public void display()
      {
         base.display();
         Console.WriteLine("Total:" + total);
      }

   }
}
```

```
namespace Prac2B
{
   internal class Test:Student
   {
      int marks1, marks2;
      public Test(int roll_no,string name, int marks1, int marks2)
         :base(roll_no,name)
      {
         this.marks1 = marks1;
         this.marks2 = marks2;
      }
      public int getMarks1()
      {
         return marks1;
      }
      public int getMarks2()
      {
         return marks2;
      }
      public void display()
      {
         base.display();
         Console.WriteLine("Marks1:" + marks1);
         Console.WriteLine("Marks2:" + marks2);
      }
   }

}
```



```
Roll no: 101
Name: sARVESH
Marks1:50
Marks2:40
Total:90
```

C) Hierarchical Inheritance

Code:

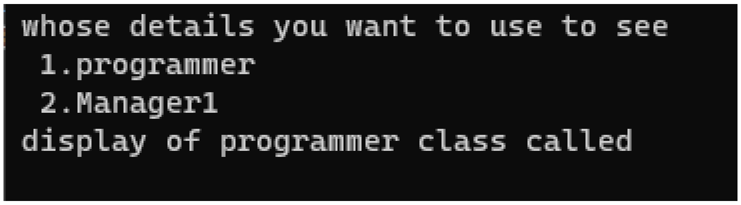
```
namespace Prac2B
{
    internal class Employee
    {
        public virtual void display()
        {
            Console.WriteLine("Display of employee class called:");
        }
    }
}
```

```
namespace Prac2B
{
    class Pragammer:Employee
    {
        public  void display()
        {
            Console.WriteLine("Display of programmer class called");
            Console.ReadLine();

        }
    }
}
```

```
namespace Prac2B
{
    class Manager:Employee
    {
        public  void display()
        {
            Console.WriteLine("Display of manager class called:");
            Console.ReadLine();

        }
```

```
   }
}
```

```
class Program
   {
      static void Main(string[] args)
      {
         Pragammer objProgrammer;
         Manager objManager;
         Console.WriteLine("Whose details you want to see \n 1.Pragrammer \n 2.Manager");
         int choice=int.Parse(Console.ReadLine());
         if (choice == 1)
         {
            objProgrammer = new Pragammer();
            objManager = new Manager();
         }
         else if(choice == 2)
         {
            objManager = new Manager();
            objProgrammer= new Pragammer();
         }
         else
         {
            Console.WriteLine("Wrong choice entered");
            Console.ReadLine();
         }
      }
   }
```



```
whose details you want to use to see
 1.programmer
 2.Manager1
display of programmer class called
```

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D) Multiple Inheritance

Code:

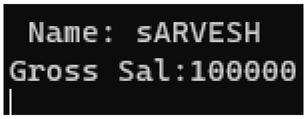
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace prac2Aiv
{
    class Emp
    {
        string name;
        public Emp(string name)
        {
            this.name = name;
        }
        public int BasicSal(int basicSal)
        {
            return basicSal;
        }
        public void ShowData()
        {
            Console.WriteLine(" Name: " + name);
                }
    }
}
```

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace prac2Aiv
{
    class Salary : Emp, Gross
    {
        int hra;
        public Salary(string name, int hra) : base(name)
        {
            this.hra = hra;
        }
        public int ta
        {
            get { return S_ta; }
            set { S_ta = value; }
        }
        private int S_ta;
        public int da
        {
            get { return S_da; }
            set { S_da = value; }
        }
        private int S_da;
        public int GrossSal()
        {
            int gSal;
            gSal = hra + ta + da + BasicSal(15000);
            return gSal;
        }
        public void dispSal()
        {
            base.ShowData();
            Console.WriteLine( "Gross Sal:" +GrossSal());
        }
    }
}
```

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace prac2Aiv
{
    interface Gross
    {
        int ta
        {
            get;
            set;
        }
        int da
        {
            get;
            set;
        }
        int GrossSal();
    }
}
```

```
using Prac2B;
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace prac2Aiv
{
    class Program
    {
        static void Main(string[] args)
        {
            Salary s = new Salary("sARVESH" , 35000);
            s.da = 20000;
            s.ta = 30000;
            s.dispSal();
            Console.Read();
        }
    }
}
```

Output:



```
 Name: sARVESH
Gross Sal:100000
```

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Practical 2B

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Aim: Create a simple application to demonstrate use of following concepts

i) using delegates and events

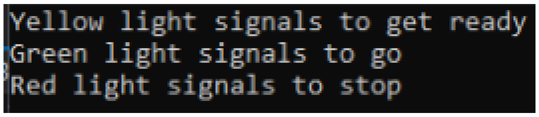
Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace practical2Bi
{
public delegate void TrafficDel();
class Traffic
{
public static void Yellow()
{
Console.WriteLine(&quot;Yellow light signals to get ready&quot;);
}
public static void Green()
{
Console.WriteLine(&quot;Green light signals to go&quot;);
}
public static void Red()
{
Console.WriteLine(&quot;Red light signals to stop&quot;);
}
TrafficDel[] td = new TrafficDel[3];
public void IdentifySignal()
{
td[0] = new TrafficDel(Yellow);
td[1] = new TrafficDel(Green);
td[2] = new TrafficDel(Red);
}
public void display()
{
td[0]();
td[1]();
td[2]();
}
}
}
```

```
namespace practical2Bi
{
```

```
class Program
{
static void Main(string[] args)
{
Traffic ts = new Traffic();
ts.IdentifySignal();
ts.display();
Console.Read();
}
}
}
```

Output:



```
Yellow light signals to get ready
Green light signals to go
Red light signals to stop
```

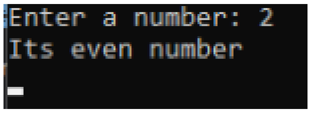
ii)WRITE  a program to accpt a number from th usr and throw an exception if the number is not an even number

Code:

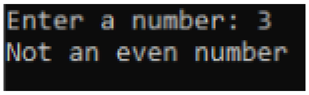
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace practical2Bi
{
class NotEvenException: Exception
{
public NotEvenException(string msg): base(msg)
{
}
}
}
```

```
using practical2Bi;
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace practical2B
{
class Program
{
static void Main(string[] args)
{
int num;
try
{
Console.Write(&quot;Enter a number: &quot;);
num = int.Parse(Console.ReadLine());
if ((num % 2) != 0) throw new NotEvenException(&quot;Not an even number &quot;);
else
Console.WriteLine(&quot;Its even number &quot;);
}
catch (NotEvenException e) { Console.WriteLine(e.Message); }
Console.Read();
}
}
}
```

Output:



```
Enter a number: 2
Its even number
```



```
Enter a number: 3
Not an even number
```