Practical-3

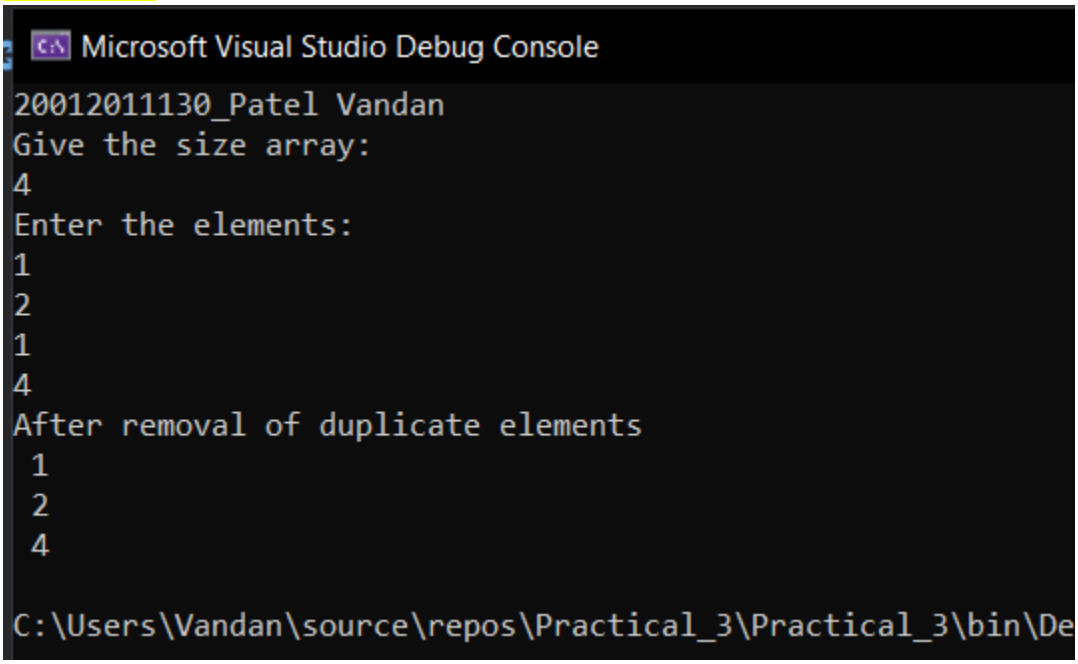
1. Write a program to remove duplicate elements of an array.

Code:

```
using System;

namespace Practical_3
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("20012011130_Patel Vandan");
            int i, j, k, n;
            Console.WriteLine("Give the size array:");
            n = Convert.ToInt32(Console.ReadLine());
            int[] a = new int[n];
            Console.WriteLine("Enter the elements:");
            for (i = 0; i < n; i++)
            {
                a[i] = Convert.ToInt32(Console.ReadLine());
            }
            for (i = 0; i < n; i++)
            {
                for (j = i + 1; j < n; j++)
                {
                    if (a[i] == a[j])
                    {
                        for (k = j; k < n; k++)
                        {
                            if (k != n - 1)
                                a[k] = a[k + 1];
                        }
                        n--;
                    }
                }
            }
            Console.WriteLine("After removal of duplicate elements");
 for (int t = 0; t < n; t++)
            {
                Console.WriteLine(" " + a[t]);
            }
```

```
        }
    }
}
```

Output:



2. Write a program for multiplication of two 2-dimentional matrices using 2-d array.

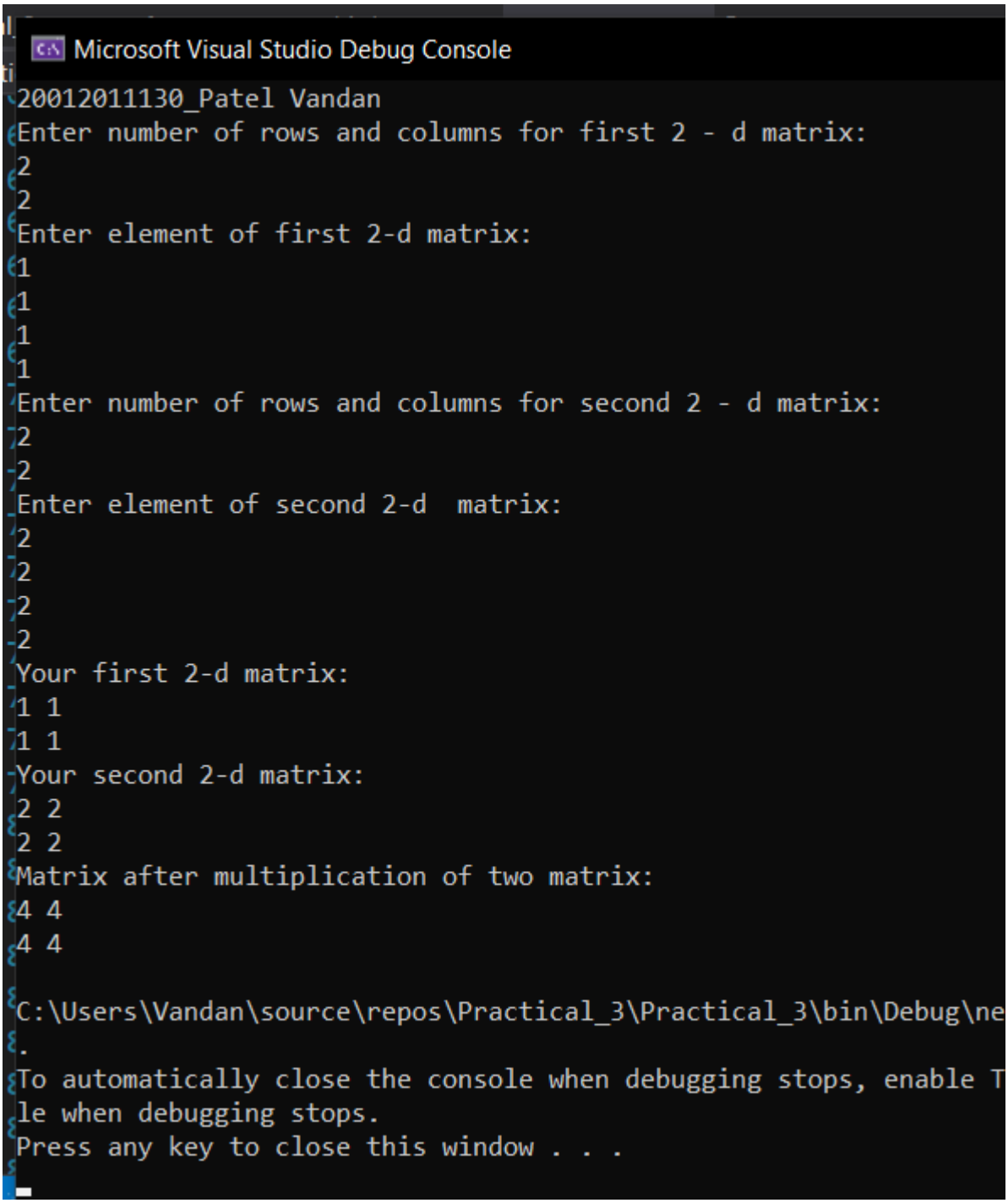
Program:

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

namespace Practical_3
{
    class second
    {
        static void Main(string[] args)
        {
```

```
            Console.WriteLine("20012011130_Patel Vandan");
            Console.WriteLine("Enter number of rows and columns for first 2 -
d matrix: ");

            int s1 = Convert.ToInt32(Console.ReadLine());
            int s2 = Convert.ToInt32(Console.ReadLine());
            int[,] a1 = new int[s1, s2];
            Console.WriteLine("Enter element of first 2-d matrix:");
            for (int i = 0; i < s1; i++)
            {
                for (int j = 0; j < s2; j++)
                {
                    a1[i, j] = Convert.ToInt32(Console.ReadLine());

                }
            }
            Console.WriteLine("Enter number of rows and columns for second 2
- d matrix: ");

            int s3 = Convert.ToInt32(Console.ReadLine());
            int s4 = Convert.ToInt32(Console.ReadLine());
            int[,] a2 = new int[s3, s4];
            Console.WriteLine("Enter element of second 2-d  matrix: ");
 for (int i = 0; i < s3; i++)
            {
                for (int j = 0; j < s4; j++)
                {
                    a2[i, j] = Convert.ToInt32(Console.ReadLine());
                }
            }
            Console.WriteLine("Your first 2-d matrix:");
            for (int i = 0; i < s1; i++)
            {
                for (int j = 0; j < s2; j++)
                {
                    Console.Write(a1[i, j] + " ");
                }
                Console.WriteLine(" ");
            }
            Console.WriteLine("Your second 2-d matrix:");
            for (int i = 0; i < s3; i++)
            {
                for (int j = 0; j < s4; j++)
                {
                    Console.Write(a2[i, j] + " ");
                }
                Console.WriteLine(" ");
            }
            if (s2 == s3)
            {
```

```
                int[,] m = new int[s1, s4];
                for (int i = 0; i < s1; i++)
                {
                    int sum = 0;
                    for (int j = 0; j < s4; j++)
                    {
                        for (int k = 0; k < s3; k++)
                        {
                            sum = sum + (a1[i, k] * a2[k, j]);
                        }
                        m[i, j] = sum;
                        sum = 0;
                    }
                }
                Console.WriteLine("Matrix after multiplication of two matrix:
");
            for (int i = 0; i < s1; i++)
                {

 for (int j = 0; j < s4; j++)
                    {
                        Console.Write(m[i, j] + " ");
                    }
                    Console.WriteLine(" ");
                }

            }
            else
            {
                Console.WriteLine("sorry!..Multiplicatio is not possible.");
            }
            Console.ReadKey();
        }
    }
}
```

Output:

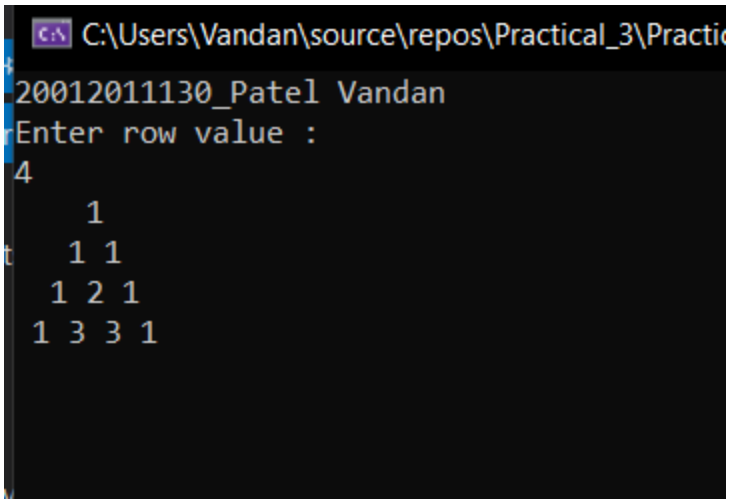


3. Write a program to generate Pascal Triangle using jagged array.

Program:

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

namespace Practical_3
{
    class third
    {
        static void Main(string[] args)
        {
            Console.WriteLine("20012011130_Patel Vandan");
            Console.WriteLine("Enter row value : ");
            int num = Convert.ToInt32(Console.ReadLine());
            for (int i = 0; i < num; i++)
            {
                for (int j = num; j > i; j--)
                {
                    Console.Write(" ");
                }
                int val = 1;
                for (int j = 0; j <= i; j++)
                {
                    Console.Write(val + " ");
                    val = val * (i - j) / (j + 1);
                }
                Console.WriteLine();
            }
            Console.ReadLine();
        }
    }
}
```

Output:



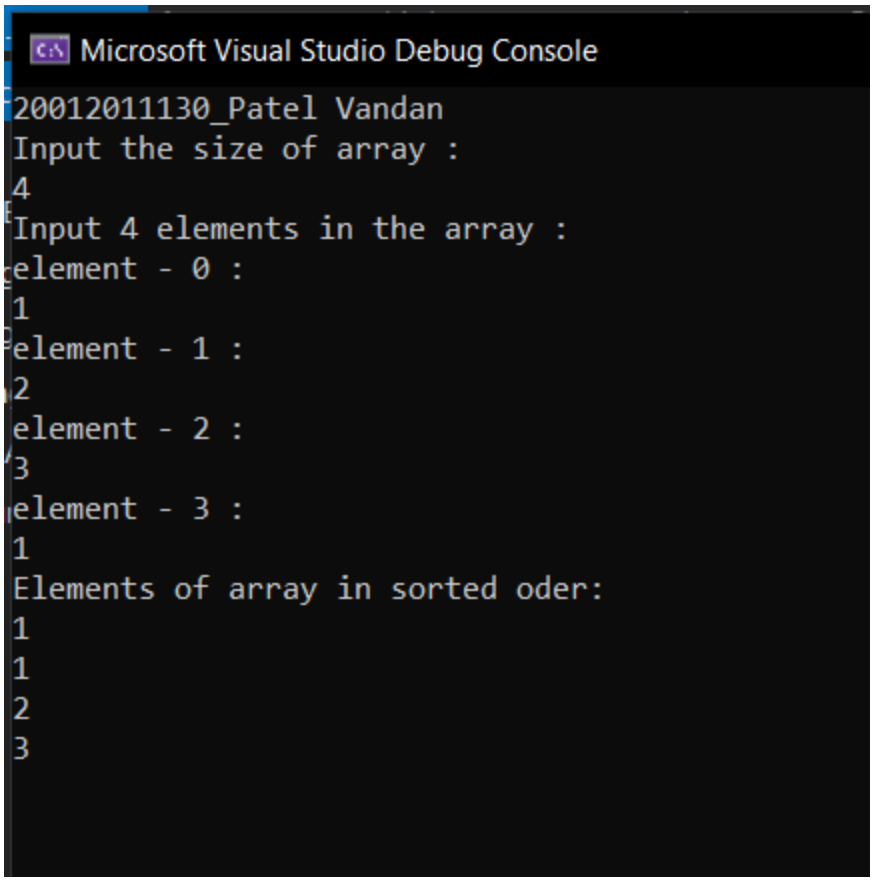
4. Write a user defined function to sort an array.

Program:

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

namespace Practical_3
{
    class four
    {
        static void Main(string[] args)
        {
            Console.WriteLine("20012011130_Patel Vandan");
            int[] arr1 = new int[10];
            int n, i, j, tmp;

            Console.WriteLine("Input the size of array : ");
            n = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Input {0} elements in the array :", n);
            for (i = 0; i < n; i++)
            {
                Console.WriteLine("element - {0} : ", i);
                arr1[i] = Convert.ToInt32(Console.ReadLine());
            }
            for (i = 0; i < n; i++)
            {
```

```
                for (j = i + 1; j < n; j++)
                {
                    if (arr1[j] < arr1[i])
                    {
                        tmp = arr1[i];
                        arr1[i] = arr1[j];
                        arr1[j] = tmp;
                    }
                }
            }
            Console.WriteLine("Elements of array in sorted oder:");
            for (i = 0; i < n; i++)
            {
                Console.WriteLine("{0}  ", arr1[i]);
            }
            Console.WriteLine(" ");
            Console.ReadLine();
        }
    }
}
```

Output:



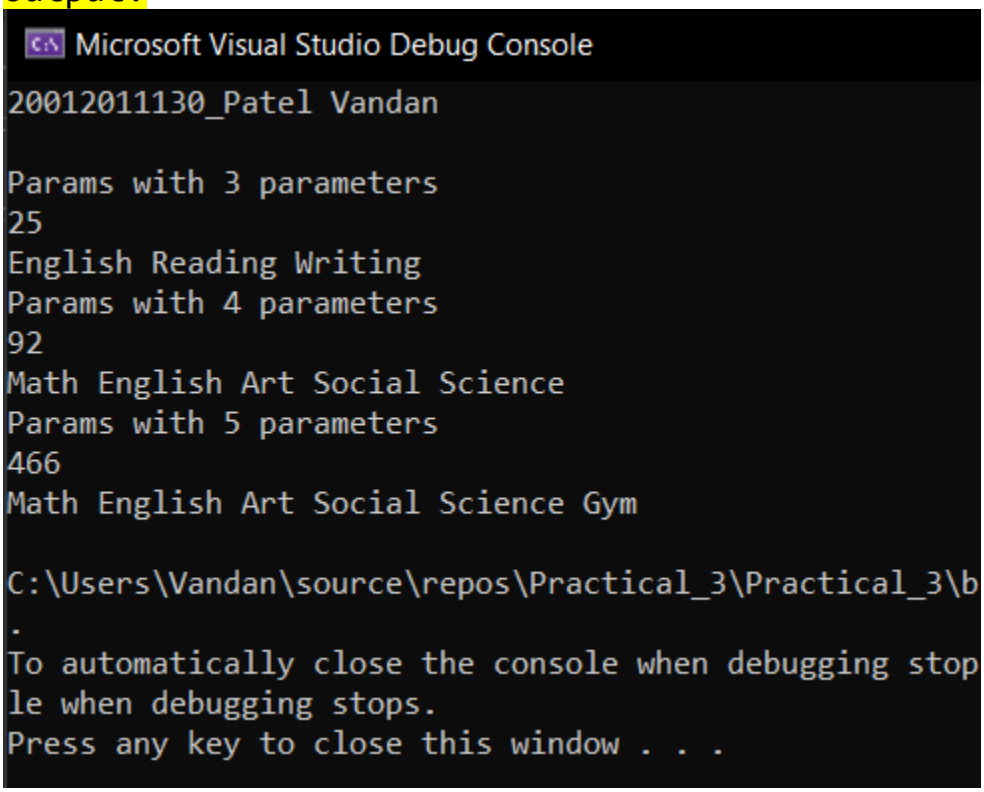
5. Demonstrate the use of params keyword with the help of a program.

Program:

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

namespace Practical_3
{
    class Five
    {
        public static int TotalMarks(params int[] list)
        {
            int total = 0;
```

```
            for (int i = 0; i < list.Length; i++)
                total += list[i];
            return total;
        }
        public static string AllSubjects(params string[] subjects)
        {
            System.Text.StringBuilder builder = new
           System.Text.StringBuilder();
            for (int i = 0; i < subjects.Length; i++)
            {
                builder.Append(subjects[i]);
                builder.Append(" ");
            }
            return builder.ToString();
        }
    }
    class class4
    {
        static void Main(string[] args)
        {
            Console.WriteLine("20012011130_Patel Vandan\n");
            Console.WriteLine("Params with 3 parameters");
            int total3 = Five.TotalMarks(8, 9, 8);
            Console.WriteLine(total3);
            string[] subs = { "English", "Reading", "Writing" };
            Console.WriteLine(Five.AllSubjects(subs));

            Console.WriteLine("Params with 4 parameters");
            int[] marks = { 24, 22, 25, 21 };
            int total4 = Five.TotalMarks(marks);
            string str4 = Five.AllSubjects("Math", "English",
           "Art", "Social Science");
            Console.WriteLine(total4);
            Console.WriteLine(str4.ToString());
            Console.WriteLine("Params with 5 parameters");
            int total5 = Five.TotalMarks(92, 90, 95, 91, 98);

        string str5 = Five.AllSubjects(new string[]{"Math", "English", "Art",
"Social Science", "Gym" });
            Console.WriteLine(total5);
            Console.WriteLine(str5.ToString());
            Console.ReadKey();

        }
    }
}
```

Output:



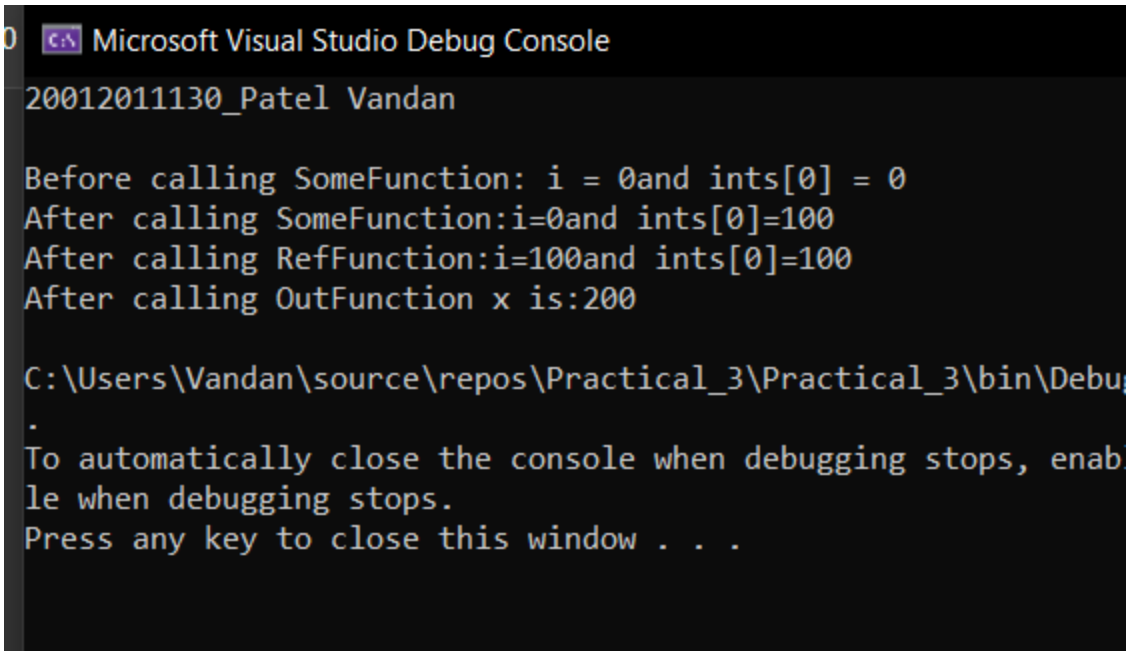
6. Discuss out and ref parameters with the help of programs.

Program:

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

namespace Practical_3
{
    class six
    {
        static void SomeFunction(int[] ints, int i)
        {
            ints[0] = 100;
            i = 100;
        }
        static void RefFunction(int[] ints, ref int i)
```

```
 {
 ints[0] = 100;
 i = 100;
 }
    static void OutFunction(out int x)
    {
        x = 200;
    }
    static void Main()
    {
        int i = 0;
        int[] ints = { 0, 1, 2, 4, 8 };
        Console.WriteLine("20012011130_Patel Vandan\n");
        Console.WriteLine("Before calling SomeFunction: i = "+i+"and ints[0]
= "+ints[0]);

        SomeFunction(ints, i);
        Console.WriteLine("After calling SomeFunction:i="
       + i + "and ints[0]=" + ints[0]);
        RefFunction(ints, ref i);
        Console.WriteLine("After calling RefFunction:i=" +
       i + "and ints[0]=" + ints[0]);
        int x;
        OutFunction(out x);
        Console.WriteLine("After calling OutFunction x is:" + x);
    }
}
}
```

Output:


Microsoft Visual Studio Debug Console
20012011130_Patel Vandan
Before calling SomeFunction: i = 0and ints[0] = 0
After calling SomeFunction:i=0and ints[0]=100
After calling RefFunction:i=100and ints[0]=100
After calling OutFunction x is:200
C:\Users\Vandan\source\repos\Practical_3\Practical_3\bin\Debu
.
To automatically close the console when debugging stops, enab
le when debugging stops.
Press any key to close this window . . .