# Practical-3

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

**Program:**

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

namespace practical_3
{

    class pr3_1
    {
        static void Main(string[] args)
        {
            Console.WriteLine("By : 20012011086_Dhruv A Patel \n");
            int i, j, k, n;
            Console.Write("Please enter size of array : ");
            n = Convert.ToInt32(Console.ReadLine());
            int[] arr = new int[n];
            Console.WriteLine("Enter the values you want to enter in array: ");
            for (i = 0; i < 7; i++)
            {
                arr[i] = Convert.ToInt32(Console.ReadLine());
            }
            for (i = 0; i < n; i++)
            {
                for (j = i + 1; j < n; j++)
                {
                    if (arr[i] == arr[j])
                    {
                        for (k = j; k < n - 1; k++)
                        {
                            arr[k] = arr[k + 1];
                        }

                        n--;
                    }
                }
            }
            Console.WriteLine("Printing the array with unique elements: ");
            for (i = 0; i < n; i++)
```

```
                {
                    Console.Write(arr[i] + " ");
                }
            }
        }
    }
}
```

**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;
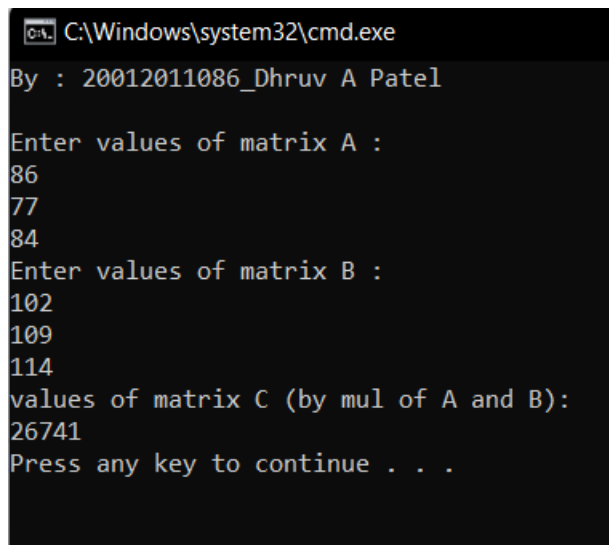
namespace practical_3
{

    class pr3_2
    {
        static void Main(string[] args)
        {
            Console.WriteLine("By : 20012011086_Dhruv A Patel \n");
            int[,] a = new int[1, 3];
            int[,] b = new int[3, 1];
            int[,] c = new int[1, 1];
            int i, j, k;

```csharp
Console.WriteLine("Enter values of matrix A :");
for (i = 0; i < 1; i++)
{
    for (j = 0; j < 3; j++)
    {
        a[i, j] = Convert.ToInt32(Console.ReadLine());
    }
}
Console.WriteLine("Enter values of matrix B :");
for (i = 0; i < 3; i++)
{
    for (j = 0; j < 1; j++)
    {
        b[i, j] = Convert.ToInt32(Console.ReadLine());
    }
}
for (i = 0; i < 1; i++)
{
    for (j = 0; j < 1; j++)
    {
        c[i, j] = 0; for (k = 0; k < 3; k++)
        {
            c[i, j] += a[i, k] * b[k, j];
        }
    }
}
Console.WriteLine("values of matrix C (by mul of A and B):");
for (i = 0; i < 1; i++)
{
    for (j = 0; j < 1; j++)
    {
        Console.Write("{0}\t", c[i, j]);
    }
    Console.Write("\n");
}
        }
    }
}
```

**Output:**

```
C:\Windows\system32\cmd.exe
By : 20012011086_Dhruv A Patel

Enter values of matrix A :
86
77
84
Enter values of matrix B :
102
109
114
values of matrix C (by mul of A and B):
26741
Press any key to continue . . .
```

## 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 pr3_3
  {
    static void Main(string[] args)
    {
      Console.WriteLine("By : 20012011086_Dhruv A Patel \n");
      int[][] a = new int[5][];
      int i, j;
      for (i = 0; i < a.Length; i++)
      {
        a[i] = new int[i + 1];
      }

```
        for (i = 0; i < a.Length; i++)
        {
          for (j = 0; j < a[i].Length; j++)
          {
            if (j == 0 || i == j)
            {
              a[i][j] = 1;
            }
            else
            {
              a[i][j] = a[i - 1][j - 1] + a[i - 1][j];
            }
            Console.Write(a[i][j] + " ");
          }
          Console.Write("\n");
        }
      }
    }
}
```

**Output:**

```
C:\Windows\system32\cmd.exe

By : 20012011086_Dhruv A Patel

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
Press any key to continue . . .
```

## 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
{

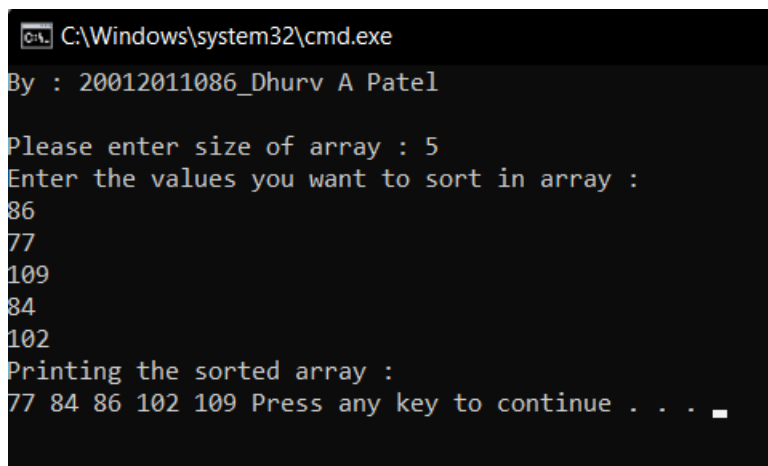  class pr3_4
  {
    static void Main(string[] args)
    {

**20012011086**                                                      **Dhruv A Patel**

```csharp
        Console.WriteLine("By : 20012011086_Dhurv A Patel \n");
        int n, i;
        Console.Write("Please enter size of array : ");
        n = Convert.ToInt32(Console.ReadLine());
        int[] arr = new int[n];
        Console.WriteLine("Enter the values you want to sort in array :");
        for (i = 0; i < n; i++)
        {
            arr[i] = Convert.ToInt32(Console.ReadLine());
        }
        sort(arr, n);
    }
    public static void sort(int[] arr, int n)
    {
        int i, j, temp;
        for (i = 0; i <= n - 1; i++)
        {
            for (j = i + 1; j < n; j++)
            {
                if (arr[i] > arr[j])
                {
                    temp = arr[i]; arr[i] = arr[j]; arr[j] = temp;
                }
            }
        }
        Console.WriteLine("Printing the sorted array :");
        for (i = 0; i < n; i++)
        {
            Console.Write(arr[i] + " ");
        }
    }
  }
}
```

**Output:**



```
C:\Windows\system32\cmd.exe

By : 20012011086_Dhurv A Patel

Please enter size of array : 5
Enter the values you want to sort in array :
86
77
109
84
102
Printing the sorted array :
77 84 86 102 109 Press any key to continue . . .
```
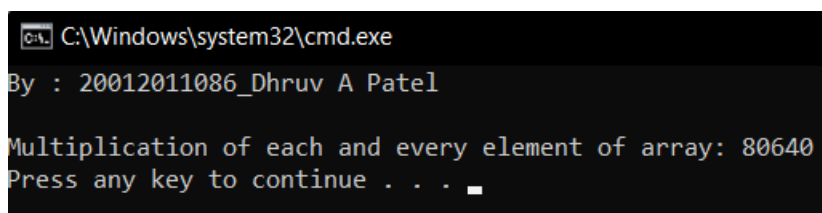
**20012011086**                                                        **Dhruv A Patel**

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

**Program:**
```csharp
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace practical_3
{

    class pr3_5
    {
        static void Main(string[] args)
        {
            Console.WriteLine("By : 20012011086_Dhruv A Patel \n");
            int m;
            m = Mul(2, 3, 8, 12, 20, 7);
            Console.WriteLine("Multiplication of each and every element of array: " +
m);
        }
        public static int Mul(params int[] arr)
        {
            int mul = 1; foreach (int i in arr)
            {
                mul = i * mul;
            }
            return mul;
        }
    }

}
```

**Output:**

```
C:\Windows\system32\cmd.exe
By : 20012011086_Dhruv A Patel

Multiplication of each and every element of array: 80640
Press any key to continue . . . _
```

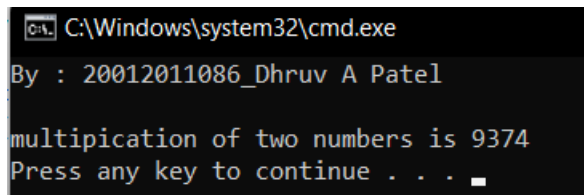## 6. Discuss out and ref parameters with the help of programs.

**Program:**

1. By out parameters:

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

namespace practical_3
{

    class pr3_6_1
    {
        static void Main()
        {
            Console.WriteLine("By : 20012011086_Dhruv A Patel \n");
            int a, b, ans;
            Mul(out a, out b, out ans);
            Console.WriteLine("multipication of two numbers is " + ans);
        }
        static void Mul(out int c, out int d, out int ans)
        {
            c = 86;
            d = 109;
            ans = c * d;
        }
    }


}
```

**Output:**

```
C:\Windows\system32\cmd.exe

By : 20012011086_Dhruv A Patel

multipication of two numbers is 9374
Press any key to continue . . . _
```
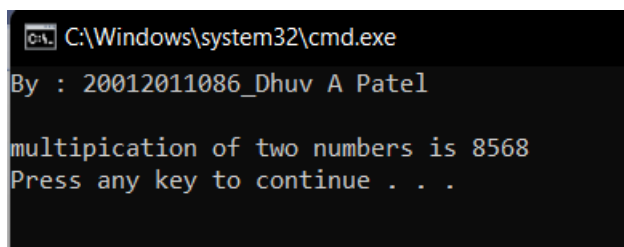
**20012011086**                                                                 **Dhruv A Patel**

2. By ref parameters:

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

namespace practical_3
{

    class pr3_6_2
    {
        static void Main()
        {
            Console.WriteLine("By : 20012011086_Dhuv A Patel \n");
            int a = 86, b = 77, ans = 109;
            Mul(ref a, ref b, ref ans);
            Console.WriteLine("multipication of two numbers is " + ans);
        }
        static void Mul(ref int c, ref int d, ref int ans)
        {
            c = 84; d = 102; ans = c * d;
        }
    }
}
```

**Output:**