Program 11: "XYZ Ltd" is a US based IT company with 1000 employees, out of which 10 employees are based on India and working in different departments. Out of 10 employees, few are managers who are leading a team also. Write a program to create a class "Employee" that has data members as follows:

Empid	**Employee ID**
Empname	**Employee Name**
dept	**Department Name (Coding / Testing/ Developer**
Desg	**Designation (Fresher /HR/ Team / Leader / Manger)**
Input()	**Take input all employee records**
Display()	**Display those Employee Id and Name who is in Developer team and designation are manager.**

Code:

```
// Employee11.cs file
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;

namespace Second_Practical
{
   public class Employee11
   {

      private int id = 0;
      private string name = "";
      private string department = "";
      private string designation = "";


      public void Input(){
         Console.WriteLine("Enter the id of the employee: ");
         id = Convert.ToInt32(Console.ReadLine());
         Console.WriteLine("Enter the name of the employee: ");
         name = Console.ReadLine();
         Console.WriteLine("Enter the department of the employee: ");
         department = Console.ReadLine();
         Console.WriteLine("Enter the designation of the employee: ");
         designation = Console.ReadLine();
      }

      public void Display(){
         Console.WriteLine("The id of the employee is: " + id);
         Console.WriteLine("The name of the employee is: " + name);
         Console.WriteLine("The department of the employee is: " + department);
         Console.WriteLine("The designation of the employee is: " + designation);
      }

   }
```

```
}

//Program.cs file
using System;
using Second_Practical;


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

        Employee11 emp = new Employee11();
        emp.Input();
        emp.Display();

        Employee11 emp2 = new Employee11();
        emp2.Input();
        emp2.Display();


    }
}
```

Output:

```
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C551),AJAY SINGH R
un
Enter the id of the employee:
01
Enter the name of the employee:
Abhishek Singh
Enter the department of the employee:
Testing
Enter the designation of the employee:
Fresher
The id of the employee is: 1
The name of the employee is: Abhishek Singh
The department of the employee is: Testing
The designation of the employee is: Fresher
Enter the id of the employee:
02
Enter the name of the employee:
Rahul Mishra
Enter the department of the employee:
Coding
Enter the designation of the employee:
HR
The id of the employee is: 2
The name of the employee is: Rahul Mishra
The department of the employee is: Coding
The designation of the employee is: HR
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C551),AJAY SINGH R
```

Program 12: A shopkeeper in Delhi started facing a lot of problems when more clients began coming in. Until now, the shopkeeper used to manually issue bills, but now he needed software. Create a program in such a way that the shopkeeper can give the client a bill, which includes the name of all products, quantity, price, discount (if applicable), and the total bill generated.

Code:

```
// Progeram.cs file
using System;
using System.Collections.Generic;

class Program
{
    class Product
    {
        public string Name { get; set; }
        public int Quantity { get; set; }
        public double Price { get; set; }
        public double Discount { get; set; } // Discount in percentage

        public double GetTotal()
        {
            double total = Quantity * Price;
            double discountAmount = total * (Discount / 100);
            return total - discountAmount;
        }
    }

    static void Main()
    {
        List<Product> products = new List<Product>();
        Console.WriteLine("Welcome to the Billing System\n");

        while (true)
        {
            Product p = new Product();
            Console.Write("Enter product name (or type 'done' to finish): ");
            p.Name = Console.ReadLine();
            if (p.Name.ToLower() == "done") break;

            Console.Write("Enter quantity: ");
            p.Quantity = Convert.ToInt32(Console.ReadLine());

            Console.Write("Enter price per unit: ");
            p.Price = Convert.ToDouble(Console.ReadLine());

            Console.Write("Enter discount (%): ");
            p.Discount = Convert.ToDouble(Console.ReadLine());

            products.Add(p);
```

```
            Console.WriteLine("Product added successfully!\n");
        }

        Console.WriteLine("\n------ Bill Summary ------");
        double grandTotal = 0;

        Console.WriteLine( "Product\t\t\tQuantity\tPrice\t\tDiscount\t\tTotal");
        Console.WriteLine("-------------------------------------------------------------");

        foreach (var item in products)
        {
            double total = item.GetTotal();
            grandTotal += total;
            Console.WriteLine(item.Name+"\t\t\t"+item.Quantity+"\t\t"+ item.Price+"\t\t"+item.Discount +
"%"+"\t\t"+total);
        }

        Console.WriteLine("-------------------------------------------------------------");
        Console.WriteLine("Grand Total: Rs. " + grandTotal);
        Console.WriteLine("\nThank you for shopping!\n");
    }
}
```

Output:

```
Welcome to the Billing System

Enter product name (or type 'done' to finish): Apple
Enter quantity: 5
Enter price per unit: 10
Enter discount (%): 0
Product added successfully!

Enter product name (or type 'done' to finish): Mango
Enter quantity: 10
Enter price per unit: 40
Enter discount (%): 20
Product added successfully!

Enter product name (or type 'done' to finish): Lichi
Enter quantity: 6
Enter price per unit: 4
Enter discount (%): 2
Product added successfully!

Enter product name (or type 'done' to finish): done

------ Bill Summary ------
Product                 Quantity        Price           Discount            Total
-------------------------------------------------------------
Apple                   5               10              0%              50
Mango                   10              40              20%             320
Lichi                   6               4               2%              23.52
-------------------------------------------------------------
Grand Total: Rs. 393.52

Thank you for shopping!

PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C551),AJAY SINGH RAWAT\coding\Second Practical>
```

Program 13: Write a program to take any string from user and count the total number of 'a' character (lower as well as upper) in a string.

Code:

```
//StringCount.cs file
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;
namespace Second_Practical
{
    public class StringCount13
    {
        public int CountCharA(string str){
            int count = 0;
            for(int i= 0 ; i<str.Length;i++){
                if(str[i]=='A'||str[i]=='a'){
                    count++;
                }

            }
            return count;
        }
    }
}

//Program.cd file
using System;
using Second_Practical;
public class Program
{
    static void Main(string[] args)
    {
        StringCount13 s = new StringCount13();
        Console.WriteLine("Enter the string: ");
        string str = Console.ReadLine();
        int a = s.CountCharA(str);
        Console.WriteLine(a);
    }
}
```

Output:

```
Enter the string:
Abhishek kumar Singh
2
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET
```

Program 14: Write a program to take any string from user and count total number of words in a string without using any inbuilt function.

Code:

```
//StringCount13.cs file
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;

namespace Second_Practical
{
    public class StringCount13
    {
        public int CountCharA(string str){
            int count = 0;
             bool flags = false;
            for(int i= 0 ; i<str.Length;i++){

                if(str[i]!=' '){
                    if(flags==false){
                        count++;
                        flags = true;
                    }
                }else{
                    flags = false;
                }
            }
            return count;
        }
    }
}

// Program.cs file
using System;
using Second_Practical;


public class Program
{
    static void Main(string[] args)
    {
        StringCount13 s = new StringCount13();
        Console.WriteLine("Enter the string: ");
        string str = Console.ReadLine();

        int a = s.CountCharA(str);
        Console.WriteLine(a);
    }
}
```

Output:

```
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C
CA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C551),AJ
tnet run Program.cs }
Enter the string:
C# is a object oriented programming language
7
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C
```

Program 15: Write a program to take any string from user and check how many words are palindrome in a string without using inbuilt function.

Code:

```
//StringCount13.cs file
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;

namespace Second_Practical
{
    public class StringCount13
    {
        public int CountCharA(string str)
        {
            int count = 0;
            string str1 = "";
            for (int i = 0; i < str.Length; i++)
            {
                if (str[i] != ' ')
                {
                    str1 = str1 + str[i];
                }
                else
                {
                    string str2 = "";
                    for (int j = str1.Length - 1; j >= 0; j--)
                    {
                        str2 = str2 + str1[j];
                    }
                    if (str1 == str2)
                    {
                        count++;
                    }
                    str1 = "";
                }
            }
            return count;
        }
    }
}

//Program.cs file
using System;
using Second_Practical;


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

```
    {
        StringCount13 s = new StringCount13();
        Console.WriteLine("Enter the string: ");
        string str = Console.ReadLine();
        int a = s.CountCharA(str);
        Console.WriteLine(a);
    }
}
```

Output:

```
E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C551),AJAY SINGH RAWA
3,30): warning CS8604: Possible null reference argument for parameter 'str' in 'int StringCount13.CountCharA(s
Enter the string:
Pop pop this sis ess
str2  poPsatr1 Pop
str2  popsatr1 pop
str2  sihtsatr1 this
str2  sissatr1 sis
2
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C551),AJAY SINGH R
```

Program 16: Write a program to take any string from user and convert each character into upper case. Don't use the inbuilt function.

Example: str "Goal is goal" Result GOAL IS GOAL

Code:

```
// StringCount13.cs file
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;

namespace Second_Practical
{
    public class StringCount13
    {
        char ToLower(char ch){
            if(ch >= 'A' && ch <= 'Z'){
                return (char)(ch + 32);
            }
            return ch;
        }
        public string CountCharA(string str)
        {
            string str1 = "";
            for (int i = 0; i < str.Length; i++)
            {
                if (str[i] != ' ')
                {
                    str1 = str1 + ToLower(str[i]);
                }else{
                    str1=str1+" ";
                }
            }
            return str1;
        }
    }
}

// Program.cs file
using System;
using Second_Practical;


public class Program
{
    static void Main(string[] args)
    {
        StringCount13 s = new StringCount13();
        Console.WriteLine("Enter the string: ");
        string str = Console.ReadLine();
```

```
        string a = s.CountCharA(str);
        Console.WriteLine(a);
    }
}
```

Output:

```
1,22): warning CS8600: Converting null literal or possible null value to non-nullab
E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framewor
2,33): warning CS8604: Possible null reference argument for parameter 'str' in 'str
Enter the string:
Hello, I Am Abhishek Kumar Singh
hello, i am abhishek kumar singh
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Frame
```

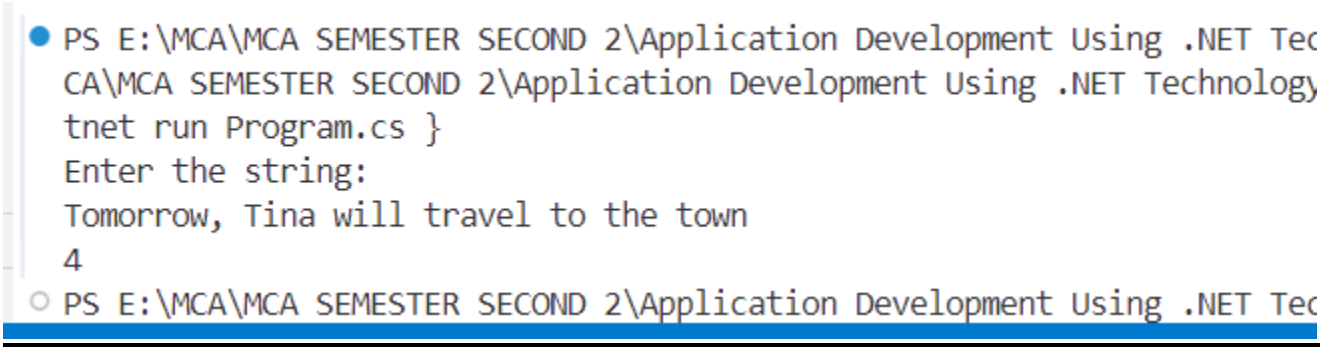
Program 17: Write a program to take any string from user and count how many words in a string start with character 't'. Don't use the inbuilt function.

Code:

```
// StringCount13.cs file
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;

namespace Second_Practical
{
    public class StringCount13
    {
        public int CountCharA(string str)
        {
            int count = 0;
            bool flags = false;
            for (int i = 0; i < str.Length; i++)
            {
                if (str[i] != ' ')
                {
                    if (flags == false)
                    {
                        if (str[i] == 't')
                        {
                            count++;
                        }
                        flags = true;
                    }
                }
                else
                {
                    flags = false;
                }
            }
            return count;
        }
    }
}

// Program.cs file
using System;
using Second_Practical;


public class Program
{
    static void Main(string[] args)
    {
        StringCount13 s = new StringCount13();
```

```
        Console.WriteLine("Enter the string: ");
        string str = Console.ReadLine();
        int a = s.CountCharA(str);
        Console.WriteLine(a);
    }
}
```

Output:



Program 18: Take size of an array and array elements from the user. Write a program to count the occurrence of each element of an array and display.

Code:

```
using System;
public class Program
{
    static void Main(string[] args)
    {
        Console.WriteLine("Enter a size of array:");
        int size = Convert.ToInt32(Console.ReadLine());
        int[] arr = new int[size];

        Dictionary<int, int> freq = new Dictionary<int, int>();
        for (int i = 0; i < size; i++)
        {
            Console.Write("Enter " + (i + 1) + " Element: ");
            arr[i] = Convert.ToInt32(Console.ReadLine());

            if (freq.ContainsKey(arr[i]))
            {
                freq[arr[i]]++;
            }
            else
            {
                freq[arr[i]] = 1;
            }
        }
        foreach (var pair in freq)
        {
            Console.WriteLine(pair.Key + ": " + pair.Value);
        }
    }
}
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  SPELL CHECKER  COMM
tnet run Program.cs }
Enter a size of array:
10
Enter 1 Element: 1
Enter 2 Element: 2
Enter 3 Element: 3
Enter 4 Element: 2
Enter 5 Element: 3
Enter 6 Element: 4
Enter 7 Element: 34
Enter 8 Element: 3
Enter 9 Element: 4
Enter 10 Element: 5
1: 1
2: 2
3: 3
4: 2
34: 1
5: 1
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Tech
```

Program 19: Write a program to take any string from user and count the total number of characters in each word. Don't use the inbuilt function.

Code:

```
// StringCount.cs file
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;
namespace Second_Practical
{
   public class StringCount13
   {
      public void CountCharA(string str)
      {
         int count = 0;
         string str1 = "";
         for (int i = 0; i < str.Length; i++)
         {
            if (str[i] != ' ')
            {
               count++;
               str1 = str1+str[i];
            }
            else
            {
               Console.WriteLine(str1+": "+count);
               count= 0;
               str1 = "";@
            }
         }
      }
   }
}
// Program.cs file
using System;
using Second_Practical;
public class Program
{
   static void Main(string[] args)
   {
      StringCount13 s = new StringCount13();
      Console.WriteLine("Enter the string: ");
      string str = Console.ReadLine();
      s.CountCharA(str);
   }
}
```

Output:

```
2,22): warning CS8604: Possible null reference argument for parameter 'str' in 'void StringCount13.CountCharA(string str)'.
Enter the string:
@ is a spacial charecter
@: 1
is: 2
a: 1
spacial: 7
charecter: 9
PS E:\MCA\MCA SEMESTER SECOND 2\Application Development Using .NET Technology Framework(MCA-C551),AJAY SINGH RAWAT\coding\Secor
```

Program 20: Create a structure named as "Faculty" that has date members as follows:

- **Ecode: Faculty Employee Code**
- **Fname: Faculty Name**
- **Fexp: Faculty Experience**
- **Esalary: Faculty Salary**
- **Edept: Faculty Department Name**
- **Read (): Input all details of a faculty**

Bonus (): Increment salary by 10%, if faculty teaching experience more than 2 years otherwise increment by 5%.

Show (): Display all details of a faculty after salary increment.

Code:

```
using System;

struct Faculty
{
    public int Ecode;
    public string Fname;
    public int Fexp;
    public double Esalary;
    public string Edept;

    public void Read()
    {
        Console.Write("Enter Employee Code: ");
        Ecode = Convert.ToInt32(Console.ReadLine());

        Console.Write("Enter Name: ");
        Fname = Console.ReadLine();

        Console.Write("Enter Experience (in years): ");
        Fexp = Convert.ToInt32(Console.ReadLine());

        Console.Write("Enter Salary: ");
        Esalary = Convert.ToDouble(Console.ReadLine());

        Console.Write("Enter Department: ");
        Edept = Console.ReadLine();
    }

    public void Bonus()
    {
        Esalary += Esalary * (Fexp > 2 ? 0.10 : 0.05);
    }
    public void Show()
```

```
    {
        Console.WriteLine("\n--- Faculty Details ---");
        Console.WriteLine("Employee Code: " + Ecode);
        Console.WriteLine("Name: " + Fname);
        Console.WriteLine("Experience: " + Fexp + " years");
        Console.WriteLine("Salary after Increment: Rs. " + Esalary);
        Console.WriteLine("Department: " + Edept);
    }
}
class Program
{
    static void Main()
    {
        Faculty faculty = new Faculty();
        faculty.Read();
        faculty.Bonus();
        faculty.Show();
    }
}
```

Output: