

**Ex.No:1****Addition of two numbers****Aim:**

To write a c# program to perform the addition of two numbers and display the result.

**Algorithm:**

**STEP 1:** Start

**STEP 2:** Read two integer numbers as 'a' and 'b'

**STEP 3:** Compute 'c=a+b'

**STEP 4:** Print the result 'c'

**STEP 5:** Stop.

**Pseudo code:**

Add()

READ a and b

CALCULATE

C=a+b

WRITE C

END of Add()

**Source Code:**

```
using System;
```

```
using System.Collections.Generic;
```

```
using System.Text;
```

```
namespace Addition_of_two_numbers
```

```
{  
    class Program  
    {  
        public static void Main()  
        {  
            Int32 a, b, c;  
            Console.WriteLine("\nEnter two numbers\n");  
            a = Int32.Parse(Console.ReadLine());  
            b = Int32.Parse(Console.ReadLine());  
            c = a + b;  
            Console.WriteLine("\nThe Addition of two numbers {0},{1} is {2}", a, b,c);  
            Console.ReadLine();  
        }  
    }  
}
```

**Output:**

Enter two numbers

4

8

The Addition of two numbers 4,8 is 12

**Result:**

The above code is executed and the required output is obtained.

### MULTIPLICATION TABLE

**Aim:**

To write a c# program to print the multiplication table.

**Algorithm:**

**STEP 1:** Start

**STEP 2:** Read the table value as "n1" and table stopping value as "n2"

**STEP 3:** loop when  $i \leq n2$  do  $Result = i * n1$

**STEP 4:** print result

**STEP 5:** Stop

**Pseudo Code:**

```
Multiplication()
{
    READ n1 and n2
    LOOP i=1 when  $i \leq n2$  do
    Result=  $i * n1$ 
    PRINT  $i * n2 = result$ 
}End of Multiplication()
```

**Source Code:**

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

namespace Multiplication_Table
{
    class Program
    {
        public static void Main()
        {
            int n1,n2,result;
            Console.Write("\nEnter table number:\t");
            n1 = Int32.Parse(Console.ReadLine());
            Console.Write("\nEnter the Stopping Value for the table:\t");
            n2=Int32.Parse(Console.ReadLine());
            for (int i = 1; i <= n2; i++)
            {
                result = i * n1;
                Console.Write("\n{0}\t*\t{1}\t=\t{2}\n", i, n1, result);
            }
            Console.ReadLine();
        }
    }
}
```

**Output:**

Enter table number: 2

Enter the Stopping Value for the table: 10

$$1 * 2 = 2$$

$$2 * 2 = 4$$

$$3 * 2 = 6$$

$$4 * 2 = 8$$

$$5 * 2 = 10$$

$$6 * 2 = 12$$

$$7 * 2 = 14$$

$$8 * 2 = 16$$

$$9 * 2 = 18$$

$$10 * 2 = 20$$

**Result:**

The above code is executed and the required output is obtained.

## SEARCHING A NUMBER

### Aim:

To write a c# program to search for the position of a given number and print its occurrences.

### Algorithm:

**STEP 1:** Start

**STEP 2:** Read 10 numbers to an integer array

**STEP 3:** Read the key value to be searched

**STEP 4:** Check in the array if the key element is present, if present print its position and occurrences

**STEP 5:** Stop

### Pseudo Code:

```
Search()
{
    Loop i=0 to i=10 do
    READ array[i]
    Read Key
    Loop i=0 to i=10 do
    If(array[i]==key)
    Occurance++
    Position=i
    WRITE position and occurrences
}END search()
```

### Source Code:

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

namespace position_and_occurance_of_a_number
{
    class Program
    {
        public static void Main()
        {
            int[] num = new int[10];
            int i, key, occurrence, position;
            occurrence = 0;
            Console.WriteLine("\nEnter 10 Numbers\t");
            for (i = 0; i < 10; i++)
            {
                Console.Write("\nEnter number {0}\t", i + 1);
                num[i] = Int32.Parse(Console.ReadLine());
            }
            Console.WriteLine("\nEnter a key value to search its position and occurrence\n");
            key = Int32.Parse(Console.ReadLine());
```

```
for (i = 0; i < 10; i++)
{
    if (key == num[i])
    {
        occurrence = occurrence + 1;
        position = i + 1;
        Console.WriteLine("\n{i} occurs in position {1}\t", key, position);
    }
}
if (occurrence != 0)
{
    Console.WriteLine("\n{i} occurs {1} times\t", key, occurrence);
}
else
    Console.WriteLine("\n{i} is not present in this array\n", key);
Console.ReadLine();
}
```

**Output:**

Enter 10 Numbers

Enter number 1 14

Enter number 2 10

Enter number 3 5

Enter number 4 3

Enter number 5 10

Enter number 6 90

Enter number 7 80

Enter number 8 56

Enter number 9 14

Enter number 10 2

Enter a key value to search its position and occurrence

14

14 occurs in position 1

14 occurs in position 9

14 occurs 2 times

**Result:**

The above code is executed and the required output is obtained.

**SORTING THE NUMBERS****Aim:**

To write a c# program to sort the given numbers in both ascending and descending order.

**Algorithm:**

**STEP 1:** Start

**STEP 2:** Read 10 numbers to an integer array

**STEP 3:** while num[0]>num[1] swap the two numbers to sort them in ascending order

**STEP 4:** While num[0]<num[1] swap the two numbers to sort them in descending order

**STEP 5:** Stop

**Pseudo Code:**

```
Sorting()
{
    Loop i=0 to 10 do
    READ num[i]
    Ascending()
    {
        Loop i=0 to 10 do
        Loop j=i+1 to j<10 do
        If(num[i]>num[j])
        Swap num[i] and num[j]
    }END ascending()
    Descending()
    {
        Loop i=0 to 10 do
        Loop j=i+1 to j<10 do
        If(num[i]<num[j])
        Swap num[i] and num[j]
    }END descending()
}END sorting()
```

**Source Code:**

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

namespace sorting_numbers
{
    class Program
    {
        public void line()
```



```
        {
            if (num[i] < num[j])
            {
                int temp = num[j];
                num[j] = num[i];
                num[i] = temp;
            }
        }
    }
    for (i = 0; i < 10; i++)
        Console.WriteLine("{0}\t", num[i]);
    obj.line();
}
break;

case 3:
    Console.WriteLine("\nThankyou\n");
    break;
}
} while (choice != 3);
Console.ReadLine();
}
}
}
```

**Output:**

Enter 10 numbers

Enter number 1 90

Enter number 2 10

Enter number 3 2

Enter number 4 8

Enter number 5 14

Enter number 6 42

Enter number 7 36

Enter number 8 58

Enter number 9 14

Enter number 10 12

The entered numbers are

90 10 2 8 14 42 36 58 14 12



1.)Ascending  
2.)Descending  
3.)Exit  
Enter your choice

1

=====

2 8 10 12 14 14 36 42 58 90

=====

1.)Ascending  
2.)Descending  
3.)Exit  
Enter your choice

2

=====

90 58 42 36 14 14 12 10 8 2

=====

1.)Ascending  
2.)Descending  
3.)Exit  
Enter your choice

3

Thankyou

KarthikKevan

**Result:**

The above code is executed and the required output is obtained.

**STRING MANIPULATION USING BUILD IN FUNCTIONS****AIM:**

To write a c# program the string manipulation using build in functions.

**Algorithm:**

**STEP 1:** Start

**STEP 2:** Read a string str

**STEP 3:** Compute temp=str.ToLower to convert to lower case

**STEP 4:** Compute temp=str.ToUpper to convert to lower case

**STEP 5:** Computer int i=str.Length to calculate the length

**STEP 6:** Compute temp = str + str2 to concat

**STEP 7:** Stop

**Pseudo Code:**

```
String()
{
    READ str
    temp = str.ToLower();
    temp = str.ToUpper();
    i = str.Length;
    temp = str + str2;
    str2 = string.Copy(str);
    temp = str.Substring(1);
    WRITE str,str2,temp;
}END string()
```

**Source Code:**

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

namespace string_manipulation_using_build__in_functions
{
    class Program
```

```

{
    public static void line()
    {
        Console.WriteLine();
        for (int i = 0; i < 80; i++)
            Console.Write("=");
        Console.WriteLine();
    }

    public static void Main()
    {
        string str, temp;
        Console.WriteLine("\nEnter a string\n");
        str = Console.ReadLine();
        Console.WriteLine("\nThe given string is {0}\t", str);
        temp = str.ToLower();
        line();
        Console.WriteLine("\nTo Lower:\n\n{0}\n", temp);
        line();
        temp = str.ToUpper();
        Console.WriteLine("\nTo Upper:\n\n{0}\n", temp);
        line();
        int i;
        i = str.Length;
        Console.WriteLine("\nLength is {0}\n", i);
        line();
        string str2;
        Console.WriteLine("\nEnter Another String\n");
        str2 = Console.ReadLine();
        temp = str + str2;
        Console.WriteLine("\nConcat is\n{0}\n", temp);
        line();
        i = string.Compare(str, str2);
        if (i == 0)
            Console.WriteLine("\nTwo strings {0} and {1} are equal\n", str, str2);
        else
            Console.WriteLine("\nTwo strings {0} and {1} are not equal\n", str, str2);
        line();
        str2 = string.Copy(str);
        Console.WriteLine("\nCopying string 1 to string 2\nString 1: {0}\nString 2: {1}\n", str, str2);
        line();
        temp = str.Substring(1);
        Console.WriteLine("\nSubstring of string 1 is {0}\n", temp);
        line();
        i = str.IndexOf("r");
        Console.WriteLine("\nStart Index of char \"r\" in string 1 is {0}\n", i);
        line();
        Console.ReadLine();
    }
}

```

**Output:**

Enter a string

kaarthik

The given string is kaarthik

=====

To Lower:

kaarthik

=====

To Upper:

KAARTHIK

=====

Length is 8

=====

Enter Another String

jo

Concat is  
kaarthikjo

=====

Two strings kaarthik and jo are not equal

=====

Copying string 1 to string 2

String 1: kaarthik

String 2: kaarthik

=====

Substring of string 1 is aarthik

=====

Start Index of char "r" in string 1 is 3

=====

**Result:**

The above code is executed and the required output is obtained.

**STRING MANIPULATION USING USER DEFINED FUNCTIONS**

**Aim:**

To write a c# program to perform the string manipulation using user defined functions.

**Algorithm:**

**STEP 1:** Start

**STEP 2:** Read a string str

**STEP 3:** using foreach loop calculate length

**STEP 4:** use = to assign one string to another

**STEP 5:** Stop

**Pseudo Code:**

```
String()
{
    READ str
    Foreach int temp in str
        Compute length++
    READ str2
    Str=str2
    Temp=str+str2
}END string()
```

**Source Code:**

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

namespace string_manup
```

```

{
class Program
{
    public static void line()
    {
        Console.WriteLine();
        for (int i = 0; i < 80; i++)
            Console.Write("=");
        Console.WriteLine();
    }

    public static void Main()
    {
        string str, str2;
        int length, i;
        length = i = 0;
        Console.WriteLine("\nEnter a string\n");
        str = Console.ReadLine();
        foreach (int temp in str)
        {
            length++;
        }
        line();
        Console.WriteLine("\nLength : {0}\t", length);
        line();
        Console.WriteLine("\nReverse of the given string is\n");
        for (i = length - 1; i != -1; i--)
        {
            Console.Write(str[i]);
        }
        Console.WriteLine();
        line();
        Console.WriteLine("\nEnter another string\n");
        str2 = Console.ReadLine();
        str = str2;
        Console.WriteLine("\nCopying string 2 to string 1 hence\nString 1:{0}\nString 2:{1}\n", str, str2);
        line();
        Console.WriteLine("\nEnter a char to find its position in string\n");
        char key;
        key = Convert.ToChar(Console.ReadLine());
        length = 0;
        foreach (int temp in str)
        {
            length++;
        }
        for (i = 0; i < length; i++)
        {
            if (str[i] == key)
            {
                Console.WriteLine("\nKey value {0} found in position {0}\t", key, i);
            }
        }
        if (str == str2)
            Console.WriteLine("\nTwo strings are equal\n");
        else
    }
}

```

```
Console.WriteLine("\nStrings are not equal\n");
Console.ReadLine();

}
}
}
```

**Output:**

Enter a string

kaarthik

=====

Length : 8

=====

Reverse of the given string is

kihtraak

=====

Enter another string

jo

Copying string 2 to string 1 hence

String 1:jo

String 2:jo

=====

Enter a char to find its position in string

o

Key value o found in position 1

Two strings are equal

**Result:**

The above code is executed and the required output is obtained.

**STUDENT DETAILS****Aim:**

To write a c# program to calculate the marks and grade of a student

**Algorithm:**

**STEP 1:** Start

**STEP 2:** Read name, reg\_no, marks

**STEP 3:** Compute total=marks[i]

**STEP 4:** Compute avg=total/5

**STEP 5:** Based on avg display GRADE

**STEP 6:** Stop

**Pseudo Code:**

```
Student_details()
{
    READ name,reg_no
    Loop i=0 to 5 do
    READ marks[i]
    Total=total+marks[i]
    Avg=total/5
    If avg>=90 WRITE GRADE O
    If avg>=80 && avg<90 WRITE GRADE A
    WRITE result: Pass
```



```
}END Student_details()
```

**Source Code:**

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

```
namespace student_details
```

```
{  
    class Program  
    {  
  
        public static void line()  
        {  
            Console.WriteLine();  
            for (int i = 0; i < 80; i++)  
                Console.Write("=");  
            Console.WriteLine();  
        }  
  
        public static void Main()  
        {  
            string name;  
            int reg_no, total, flag;  
            total = 0;  
            flag = 1;  
            float avg;  
            int[] marks = new int[5];  
            Console.WriteLine("\nEnter student name\n");  
            name = Console.ReadLine();  
            Console.WriteLine("\nEnter Register number\n");  
            reg_no = Int32.Parse(Console.ReadLine());  
            Console.WriteLine("\nEnter marks in English\n");  
            marks[0] = Int32.Parse(Console.ReadLine());  
            Console.WriteLine("\nEnter marks in Tamil\n");  
            marks[1] = Int32.Parse(Console.ReadLine());  
            Console.WriteLine("\nEnter marks in Maths\n");  
            marks[2] = Int32.Parse(Console.ReadLine());  
            Console.WriteLine("\nEnter marks in Science\n");  
            marks[3] = Int32.Parse(Console.ReadLine());  
            Console.WriteLine("\nEnter marks in SST\n");  
            marks[4] = Int32.Parse(Console.ReadLine());  
            line();  
            for (int i = 0; i < 5; i++)  
            {  
                total = total + marks[i];  
                if (marks[i] < 40)  
                    flag = 0;  
            }  
            avg = total / 5;  
            Console.WriteLine("\nName\t:{0}\nReg  
No\t:{1}\n\nMarks:\n\nEnglish\t:{2}\nTamil\t:{3}\nMaths\t:{4}\nScience\t:{5}\nSST\t:{6}\n\nTotal\t:{7}\n\nAvg\t:{8  
}\n\n", name, reg_no, marks[0], marks[1], marks[2], marks[3], marks[4], total, avg);  
            if (flag == 1)
```

```
{
    if (avg >= 90)
        Console.WriteLine("\nGrade\t: O");
    if (avg >= 80 && avg < 90)
        Console.WriteLine("\nGrade\t: A");
    if (avg >= 70 && avg < 80)
        Console.WriteLine("\nGrade\t: B");
    if (avg >= 60 && avg < 70)
        Console.WriteLine("\nGrade\t: C");
    if (avg >= 40 && avg < 60)
        Console.WriteLine("\nGrade\t: D");
    Console.WriteLine("\nResult : PASS\n");
}
else
    Console.WriteLine("\nGrade : NILL\n\nResult : FAIL\n");

Console.ReadLine();
}
}
```

**Output:**

Enter student name

kaarthik

Enter Register number

14

Enter marks in English

90

Enter marks in Tamil

80

Enter marks in Maths

95

Enter marks in Science

95

Enter marks in SST

80

=====  
Name :kaarthik  
Reg No :14

Marks:

English :90  
Tamil :80  
Maths :95  
Science :95  
SST :80

Total :440

Avg :88

Grade : A

Result : PASS

**Result:**

The above code is executed and the required output is obtained.

### **ELECTRICITY BILL**

**Aim:**

To write a c# program to calculate the EB Bill.

**Algorithm:**

**STEP 1:** Start

**STEP 2:** Read previous reading and current reading

**STEP 3:** compute units= current reading-current reading

**STEP 4:** Calculate price based on the amount of units consumed

**STEP 5:** Write previous reading, current reading, units and price

**STEP 6:** Stop

**Pseudo Code:**

```
EB()  
{  
    READ previous reading and current reading  
    Compute units=current reading-previous reading
```

```

    If units <=100
    Price=units
    If units >100 && units <=200
    Price=units*1.5
    If units>200 && units <=300
    Price=units* 2
    If units>300
    Price=units *3
    WRITE price, previous reading, current reading, units
}END EB()

```

**Source Code:**

```

using System;
using System.Collections.Generic;
using System.Text;

namespace EB_bill
{
    class Program
    {
        class eb
        {
            protected int pre_reading, current_reading, units;
            protected double price;

            public void input()
            {
                int temp;
                Console.Write("\nEnter Previous Reading:\t");
                pre_reading = Int32.Parse(Console.ReadLine());
                Console.Write("\nEnter Current Reading:\t");
                temp = Int32.Parse(Console.ReadLine());
                if (temp >= pre_reading)
                    current_reading = temp;
                else
                {
                    Console.WriteLine("\nEnter a valid reading\n");
                }
            }

            public void display()
            {
                line();
                Console.WriteLine("\t\t\tEB BILL");
                line();
                Console.WriteLine("\nPrevious Reading\t:{0}\nCurrent Reading\t\t:{1}\nTotal
Units\t\t:{2}\nPrice\t\t\t:{3}\n", pre_reading, current_reading, units, price);
                line();
            }

        }

    }

    class domestic:eb

```

```
{
public void calculate()
{
    units = current_reading - pre_reading;
    if (units > 0 && units <= 100)
        price = units;
    if (units > 100 && units <= 200)
        price = units * (1.5);
    if (units > 300 && units <= 400)
        price = units * 2;
    if (units > 400 && units <= 500)
        price = (units)*(2.5);
    if (units > 500)
        price = units * 3;
}
}
```

```
class commercial:eb
{
public void calculate()
{
    units = current_reading - pre_reading;
    if (units > 0 && units <= 100)
        price = units*5;
    if (units > 100 && units <= 200)
        price = units * 6;
    if (units > 300 && units <= 400)
        price = units * 7;
    if (units > 400 && units <= 500)
        price = (units) * 8;
    if (units > 500)
        price = units * 9;
}
}
```

```
public static void line()
{
    Console.WriteLine();
    for (int i = 0; i < 80; i++)
        Console.Write("=");
    Console.WriteLine();
}
```

```
public static void Main()
{
    domestic obj = new domestic();
    commercial obj2 = new commercial();
    int choice;

    do
    {
        Console.WriteLine("\n1.Domestic\n2.Commercial\n3.Exit\nEnter your choice\n");
        choice = Int32.Parse(Console.ReadLine());
    }
}
```

```

switch (choice)
{
    case 1:
        obj.input();
        obj.calculate();
        obj.display();
        break;
    case 2:
        obj2.input();
        obj2.calculate();
        obj2.display();
        break;
    case 3: Console.WriteLine("\nThank you\n");
        break;
    default: Console.WriteLine("\nEnter a valid number\n");
        break;
}
} while (choice != 3);
Console.ReadLine();
}
}
}

```

**Output:**

- 1.Domestic
- 2.Commercial
- 3.Exit

Enter your choice

1

Enter Previous Reading: 800

Enter Current Reading: 1600

=====

EB BILL

=====

Previous Reading	:800
Current Reading	:1600
Total Units	:800
Price	:2400

=====

- 1.Domestic
- 2.Commercial
- 3.Exit

Enter your choice

3

Thank you

**Result:**

The above code is executed and the required output is obtained.