

Ex. No. 01	BASIC PROGRAMS IN C#
31.07.2023	

Aim

To develop C# programs using control statements, arrays and methods.

Description

if else: If the condition is true the statements inside the if block gets executed else the statements inside the else block gets executed.

Syntax:

```
if{ //if block statements }
```

```
else{ //else block statements }
```

switch: condition matching case statement gets executed.

Syntax:

```
switch{
```

```
case <case_matching>: //case block statements
```

```
default: //default block statements
```

```
}
```

for loop: To do a repetitive task; has initialization, condition and increment/decrement.

Syntax:

```
for(initialization; condition; increment/decrement){
```

```
//for loop body statements
```

```
}
```

Array: to store multiple values under a single name.

Syntax:

```
<data_type>[] <variable>;
```

params: A type of parameters that denotes varying number of parameters.

Syntax:

```
<return_type> <ftn_name>(params <data_type>[] <variable>)
```

out: A keyword that denotes variable need not to be initialized before passing it to the function

Syntax:

```
<return_type> <ftn_name>(ref <data_type> <variable>)
```

ref: A keyword that gets the address of the variable that is passed to the function as parameter

Syntax:

```
<return_type> <ftn_name>(out <data_type> <variable>)
```

Source Code

1.

```
using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Ex1 {

    internal class LeapYear{
```

```
static void Main(string[] args){  
  
    Console.Write("Enter any Year to check is Leap year or not: ");  
  
    int year=Convert.ToInt32(Console.ReadLine());  
  
    if ((year%400==0)||((year%4==0 && year%100!=0))  
  
    { Console.WriteLine("\n"+year+" is a Leap Year"); }  
  
    else { Console.WriteLine("\n"+year+" is not a Leap Year"); }  
  
    Console.ReadKey();  
  
    }  
  
    }  
  
}
```

2.

```
using System;  
  
using System.Collections.Generic;  
  
using System.Linq;  
  
using System.Text;  
  
using System.Threading.Tasks;  
  
namespace Ex1 {  
  
    internal class PrimeNumbers {  
  
        public static bool check(int num){  
  
            for(int i = 2; i < num/2; i++){  
  
                if (num%i == 0) { return false; }  
  
            }  
  
            if (num!=1) return true;  
  
            else return false;  
  
        }  
  
    }  
  
}
```

```
}  
  
static void Main(string[] args) {  
  
    Console.Write("Enter Starting number: ");  
  
    int start=Convert.ToInt32(Console.ReadLine());  
  
    Console.Write("Enter Ending number: ");  
  
    int stop = Convert.ToInt32(Console.ReadLine());  
  
    Console.WriteLine("Prime Numbers Between the Range are as follows");  
  
    for (int i = start; i < stop; i++){  
  
        if (check(i)){ Console.Write(i+", "); }  
  
    }  
  
    Console.ReadKey();  
  
}  
  
}
```

3.

```
using System;  
  
using System.Collections.Generic;  
  
using System.Linq;  
  
using System.Text;  
  
using System.Threading.Tasks;  
  
namespace Ex1 {  
  
    internal class SimpleCalculator{  
  
        static int simple_cal(int num1, int num2, char ch) {  
  
            int res=0;
```

```
switch (ch){
    case '+':
        res=num1 + num2;
        break;
    case '-':
        res=num1 - num2;
        break;
    case '*':
        res=num1 * num2;
        break;
    case '/':
        res=num1 / num2;
        break;
}
return res;
}

static void Main(string[] args) {
    Console.Write("Enter Num1: ");
    int num1=Convert.ToInt32(Console.ReadLine());
    Console.Write("Enter Num2: ");
    int num2=Convert.ToInt32(Console.ReadLine());

    Console.Write(" \n+ => Add \n- => Subtract \n* => Multiply \n/ => Divide \nEnter
Your Choice:");
    char ch=(char) Console.Read();
}
```

```
        Console.WriteLine("\nResult is: " +simple_cal(num1,num2,ch));

        Console.ReadKey();

    }

}

}
```

4.

```
using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Ex1 {

    internal class SimpleCalculator2{

        static int simple_cal2(char ch, params int[] nums){

            int res = nums[0];

            switch (ch){

                case '+':

                    for (int i = 1; i < nums.Length; i++){

                        res += nums[i];}

                    break;

                case '-':

                    for (int i = 1; i < nums.Length; i++){

                        res -= nums[i];}

                    break;
```

```
        case '*':
            for (int i = 1; i < nums.Length; i++) {
                res *= nums[i]; }
            break;
        case '/':
            for (int i = 1; i < nums.Length; i++) {
                res /= nums[i];}
            break;
    }
    return res;
}

static void Main(string[] args) {
    Console.Write("Enter #. Inputs: ");
    int n=Convert.ToInt32(Console.ReadLine());
    int[] nums=new int[n];
    Console.WriteLine("Enter #: ");
    for (int i = 0; i < n; i++){
        nums[i]=Convert.ToInt32(Console.ReadLine());}

    Console.Write(" \n+ => Add \n- => Subtract \n* => Multiply \n/ => Divide \nEnter
Your Choice:");

    char ch = (char)Console.Read();

    Console.WriteLine("\nResult is: " + simple_cal2(ch, nums));

    Console.ReadKey();
}
```

```
}  
}
```

5.

```
using System;  
  
using System.Collections.Generic;  
  
using System.Linq;  
  
using System.Text;  
  
using System.Threading.Tasks;  
  
namespace Ex1 {  
  
    internal class Banking {  
  
        static void create(int amt, out int bal) {  
  
            bal = amt; }  
  
        static void withdraw_amt(int amt, ref int bal) {  
  
            bal-=amt; }  
  
        static void Main(string[] args) {  
  
            int bal;  
  
            Console.Write("Enter Amount to create Account: ");  
  
            int amt=Convert.ToInt32(Console.ReadLine());  
  
            create(amt, out bal);  
  
            Console.WriteLine("\nAccount Created Successfully");  
  
            Console.Write("\nEnter Amount to withdraw from Account: ");  
  
            int withdraw= Convert.ToInt32(Console.ReadLine());  
  
            if (withdraw <= bal) {  
  
                withdraw_amt(withdraw, ref bal);
```



```
        Console.WriteLine("\nAmount Withdrawn Successfully");

        Console.WriteLine("Balance: " + bal); }

    else

        Console.WriteLine("\nWithdrawl is not possible"); }

    Console.ReadKey();

}

}

}
```

6.

```
using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Ex1 {

    internal class RegSearch{

        static void Main(string[] args) {

            Console.Write("Enter #. Register #: ");

            int n = Convert.ToInt32(Console.ReadLine());

            int[] reg_arr = new int[n];

            Console.WriteLine("Enter Register #s: ");

            for (int i = 0; i < n; i++){

                reg_arr[i] = Convert.ToInt32(Console.ReadLine());}

            Console.Write("\n1. Display \n2. Search \nEnter your Choice: ");
```

```
int ch = Convert.ToInt32(Console.ReadLine());

if (ch == 1){

    Console.WriteLine("Displaying Register #s");

    for(int i = 0; i < n-1; i++) {

        Console.Write(reg_arr[i] + ", ");

        Console.Write(reg_arr[n-1] + ", ");

    }

    else if (ch == 2) {

        Console.WriteLine("Enter Register # to search: ");

        int num=Convert.ToInt32(Console.ReadLine());

        bool flag = false;

        for (int i = 0; i < n; i++){

            if (reg_arr[i] == num){

                Console.WriteLine(num+" is there in Register #");

                flag = true;

                break;

            }

        }

        if (!flag) Console.WriteLine(num + " is not there in Register #");

    }

    Console.ReadKey();

}

}
```

Output

1.

```
Enter any Year to check is Leap year or not: 2003
2003 is not a Leap Year
Enter any Year to check is Leap year or not: 2004
2004 is a Leap Year
```

2.

```
Enter Starting number: 15
Enter Ending number: 50
Prime Numbers Between the Range are as follows
17, 19, 23, 29, 31, 37, 41, 43, 47,
```

3.

```
Enter Num1: 25
Enter Num2: 3

+ => Add
- => Subtract
* => Multiply
/ => Divide
Enter Your Choice:*

Result is: 75
```

4.

```
Enter #. Inputs: 5
Enter #:
1
2
3
4
5

+ => Add
- => Subtract
* => Multiply
/ => Divide
Enter Your Choice:*

Result is: 120
```

5.

```
Enter Amount to create Account: 5000
Account Created Successfully
Enter Amount to withdraw from Account: 500
Amount Withdrawn Successfully
Balance: 4500
```

6.

```
Enter #. Register #: 5
Enter Register #s:
1001
1002
1003
1004
1005

1. Display
2. Search
Enter your Choice: 1
Displaying Register #s
1001, 1002, 1003, 1004, 1005,
```

```
1. Display
2. Search
Enter your Choice: 2
Enter Register # to search: 1005
1005 is there in Register #
```

Result

The C# programs using control statements, arrays and methods has been executed successfully and the desired output is displayed on the screen.