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THE IF STATEMENT

if (condition)

   statement;

else

   statement;

RELATIONAL OPERATORS

Operator	Meaning
<	Less than
<=	Less than or equal to
>	Greater than
>=	Greater than or equal to
= =	Equal to
!=	Not equal

ARITHMETIC OPERATORS

Operator	Meaning
+	Addition
-	subtraction
*	Multiplication
/	Division
%	Modulus
++	Increment
--	Decrement

Ex1: **Write a VC# program to read the student's information (name, sex, three scores), compute the average and determine if the average is greater than 60 or less.**

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

namespace ConsoleApplication1
{
    class Program
    {
        static void Main(string[] args)
        {
            string n;
            char s;
            double d1, d2, d3;
            Console.WriteLine("Enter the studentr's name: ");
            n = Console.ReadLine();
            Console.WriteLine("Enter the student's sex:");
            s = Convert.ToChar(Console.ReadLine());
            Console.WriteLine("Enter the first degree");
            d1 = Convert.ToDouble(Console.ReadLine());
            Console.WriteLine("Enter the second degree");
            d2 = Double.Parse(Console.ReadLine());
            Console.WriteLine("Enter the third degree");
            d3 = Double.Parse(Console.ReadLine());
            double av = (d1 + d2 + d3) / 3;
            Console.WriteLine("Name: {0}\nSex:
                            {1}\nAverage:{2}", n, s, av);
            if (av > 60)
                Console.WriteLine("The Average is Greater than
                                60");
            Console.ReadLine();


        }
    }
}
```
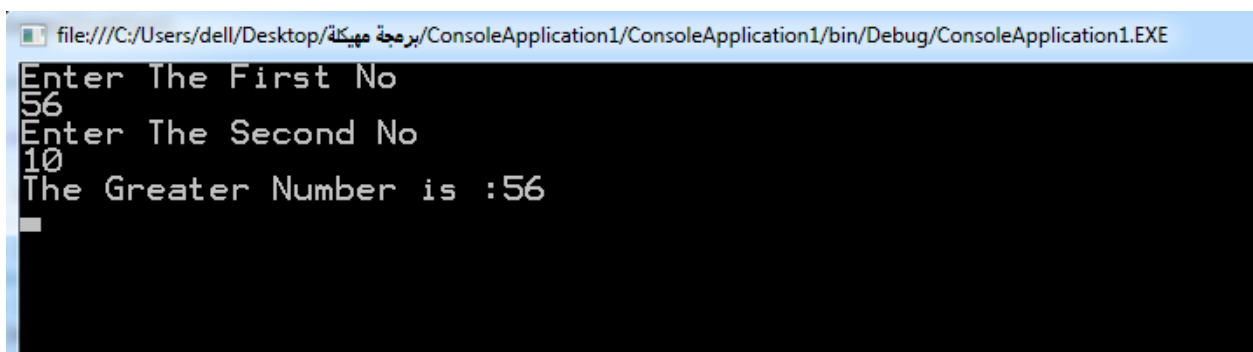
The output:

```
file:///C:/Users/dell/Desktop/برمجة مهيكلة/ConsoleApplication1/ConsoleApplication1/bin/Debug/ConsoleApplicatio
Enter the studentr's name:
Ali
Enter the student's sex:
M
Enter the first degree
80
Enter the second degree
98
Enter the third degree
78
Name: Ali
Sex: M
Average:85.3333333333333
The Average is Greater than 60
```

Ex2: **Write a VC# program to read two integer number and display which is greater.**

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

namespace ConsoleApplication1
{
    class Program
    {
        static void Main(string[] args)
        {
            int a, b;
            Console.WriteLine("Enter The First No ");
            a = Int32.Parse(Console.ReadLine());
            Console.WriteLine("Enter The Second No ");
            b = Int32.Parse(Console.ReadLine());
            if (a > b)
                Console.WriteLine("The Greater Number is :"+a);
            else
                Console.WriteLine("The Greater Number is :"+ b);
            Console.ReadLine();

        }
    }
}
```
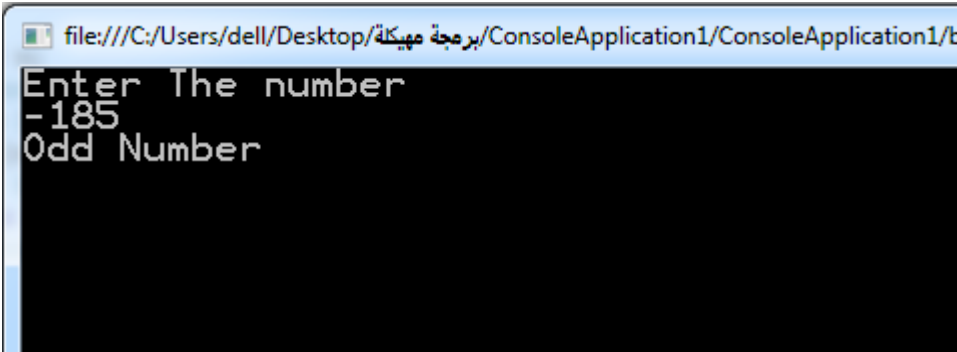
The output:

```
file:///C:/Users/dell/Desktop/برمجة هيكلة/ConsoleApplication1/ConsoleApplication1/bin/Debug/ConsoleApplication1.EXE
Enter The First No
56
Enter The Second No
10
The Greater Number is :56
```

4

EX3: Write a VC# program to read positive integer number. Determine and print whether the number even or odd.

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

namespace ConsoleApplication1
{
    class Program
    {
        static void Main(string[] args)
        {

            int x;
            Console.WriteLine("Enter The number");
            x = Int32.Parse(Console.ReadLine());
            if (x % 2 == 0)
                Console.WriteLine("Even Number");
            else Console.WriteLine("Odd Number");
            Console.ReadLine();



        }
    }
}
```

The output:

```
if (condition)

{

    statement sequence

}

else

{

    statement sequence

}
```

EX4: **Write a VC# program to read two double numbers(x,y) and swap the two numbers if x>y.**

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

namespace ConsoleApplication1
{
    class Program
    {
        static void Main(string[] args)
        {
            double x, y, z;
            Console.WriteLine("Enter x value");
            x = Convert.ToDouble(Console.ReadLine());
            Console.WriteLine("Enter y value");
            y = Double.Parse(Console.ReadLine());
            if (x >y)
            {
                z = x;
                x = y;
                y = z;
                Console.WriteLine("Swap between two numbers:
                            x={0}\ty={1}", x, y);
            }
            else
                Console.WriteLine("No Swap\nx={0}\ty={1}",
                            x, y);
            Console.ReadLine();


        }
    }
}
```

The output:

```
file:///C:/Users/dell/Desktop/برمجة هيكلة/ConsoleApplication1/ConsoleApplication1/bin/Debug/ConsoleApplicatio
Enter x value
19
Enter y value
-122
Swap between two numbers: x=-122          y=19
```

SOME OF LOGICAL OPERATORS

Operator	Meaning
&&	AND
‖	OR
!	NOT

EX5: **Write a VC# program to read an integer number and determine if an even number and positive.**

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

namespace ConsoleApplication1
{
    class Program
    {
        static void Main(string[] args)
        {

            int x;
            Console.WriteLine("Enter x value");
            x = Int32.Parse(Console.ReadLine());

            if (x % 2 == 0 && x > 0)

                Console.WriteLine("x is even and positive");

            Console.ReadLine();



        }
    }
}
```
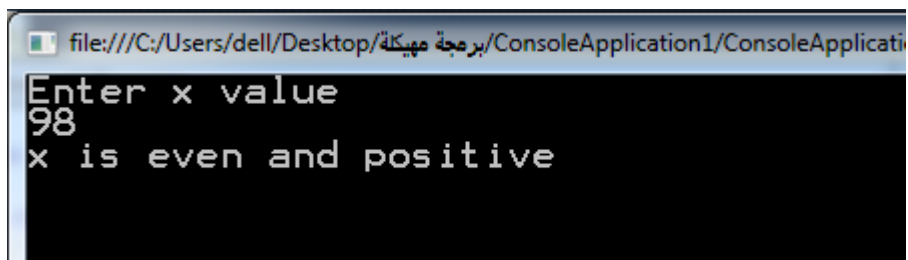
The output:

The if-else-if ladder

if (condition)

    statement;

else if (condition)

    statement;

    .

    .

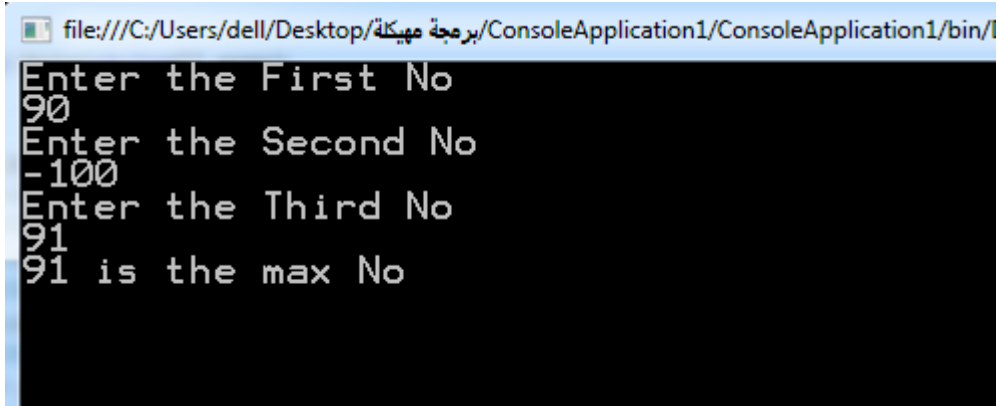   **.**

else

    statement;

EX6: Write a VC# program to test the largest number from three integer numbers.

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

namespace ConsoleApplication1
{
    class Program
    {
        static void Main(string[] args)
        {

            int x, y, z;
            Console.WriteLine("Enter the First No");
            x = Int32.Parse(Console.ReadLine());
            Console.WriteLine("Enter the Second No");
            y = Int32.Parse(Console.ReadLine());
            Console.WriteLine("Enter the Third No");
            z = Int32.Parse(Console.ReadLine());
            if (x > y && x > z)
                Console.WriteLine(x+" is the max No");
            else if (y > z && y > x)
                Console.WriteLine(y+" is the max No");
            else Console.WriteLine(z+" is the max No");

            Console.ReadLine();


        }
    }
}
```

The output:

```
file:///C:/Users/dell/Desktop/برمجة مهيكلة/ConsoleApplication1/ConsoleApplication1/bin/
Enter the First No
90
Enter the Second No
-100
Enter the Third No
91
91 is the max No
```

EX7: **Write a VC# program to implement the mathematical operation (+, - , *, /) using switch multiple selection structure.**

```
namespace ConsoleApplication2
{
    class Program
    {
        static void Main(string[] args)
        {
            double x, y, z;
            int s;
            Console.WriteLine("Enter The First No.");
            x = Convert.ToDouble(Console.ReadLine());
            Console.WriteLine("Enter The Second No.");
            y = Convert.ToDouble(Console.ReadLine());
            Console.WriteLine("Enter Your Choice
            :\n1:Addition\n2:Subtraction\n3:
            Multiblication\n4: Division");
            s = Convert.ToInt16(Console.ReadLine());
            switch (s)
            {
                case 1: z = x + y;
                    Console.WriteLine("x+y= " + z);
                    break;
                case 2: z = x - y;
                    Console.WriteLine("x-y= " + z);
                    break;
                case 3: z = x * y;
                    Console.WriteLine("x*y= " + z);
                    break;
                case 4: z = x / y;
                    Console.WriteLine("x/y= " + z);
                    break;
                default: Console.WriteLine("Error Enter
                                            New Choice");
                    break;

            }
            Console.ReadLine();
```

13

```
        }
    }
}
```

The Output:

file:///C:/Users/Zinah/Desktop/2017 برمجة ميكلة/ConsoleApplication2/ConsoleApplication

```
Enter The First No.
1024
Enter The Second No.
16
Enter Your Choice :
1:Addition
2:Subtraction
3:Multiplication
4:Division
4
x/y= 64
```

H.W

Q1/ Write a VC# program to print Z using the formula:

$$x = \begin{cases} 2A^2 + \dfrac{3B}{A} & A \geq B \\ B^2 + 3A & A < B \end{cases}$$

Q2 /Write a VC# program to print y using the formula:

$$y = \begin{cases} x^2 + 3 & x > 0 \\ x + 3 & x = 0 \\ x^3 & x < 0 \end{cases}$$

Q3/ Write a VC# program to find C value according to the equation:
$$C = A^3 + A^2 B^3 + 7B^2$$

Q4/ Write a VC# program to find z value according to the following equation:

$$z = \begin{cases} 3x^3 - 6y & -1 < x < 1 \\ 6xy & otherwise \end{cases}$$

Q5/ Write a VC# program to read 4 integer numbers and find the greater value of them.

Q6/ suppose x and y are two integer numbers. Write a program to swap them if x and y are even and x is divided by y.

Q7/ Write a VC# program to read integer numbers (10 ….50) then separate it into two parts such as: x=45, a=4 and b=5.

Q8/ Write a VC# program to read integer numbers (10 ….99) then convert it to reverse order such as: 35 ⟶ 53.

Q9/ Write a VC# program to test the number and determine if the number is even and multiple of 6.

Q10 /Write a VC# program to find y value using the formula:

$$y = \begin{cases} x^3 * 6 & x > 0 \\ 3x - 3 & x = 0 \\ x^2 - 2 & x < 0 \end{cases}$$

Q11/ Write a VC# program to solve the following equation:

$$z = \begin{cases} |b| + 3a^3 \\ \sqrt{a^2 + c} \\ (a + c)^2/b \end{cases}$$

Q12/ Write a VC# program to read a digit from (0-9) and print the name of it.