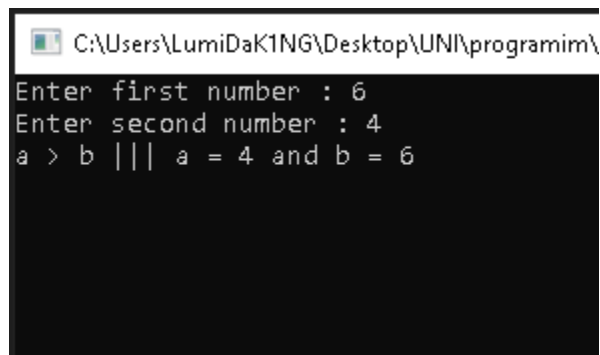


Chapter 5. Conditional Statements

1. Write an if-statement that takes two integer variables and exchanges their values if the first one is greater than the second one.

```
using System;

namespace ex1
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter first number : ");
            int a = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter second number : ");
            int b = Convert.ToInt32(Console.ReadLine());
            if(a>b)
            {
                int newA = a;
                a = b;
                b = newA;
                Console.WriteLine("a > b ||| a = {0} and b = {1}", a, b);
            }
            else
            {
                Console.WriteLine("a < b ||| a = {0} and b = {1}", a, b);
            }
            Console.ReadKey();
        }
    }
}
```



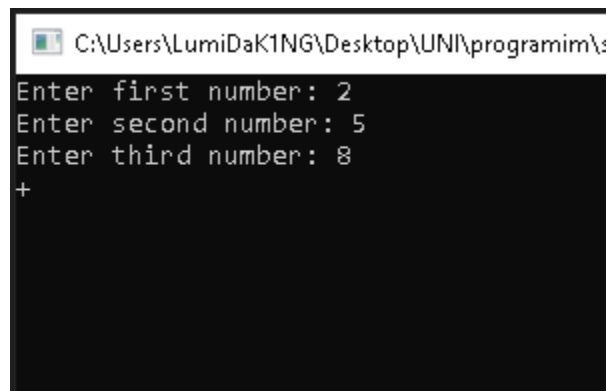
```
C:\Users\LumiDaK1NG\Desktop\UNI\programim\
Enter first number : 6
Enter second number : 4
a > b ||| a = 4 and b = 6
```

2. Write a program that shows the sign (+ or -) of the product of three real numbers, without calculating it. Use a sequence of if operators.

```
using System;

namespace ex2
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter first number: ");
            int a = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter second number: ");
            int b = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter third number: ");
            int c = Convert.ToInt32(Console.ReadLine());

            if (a < 0 && b < 0 && c < 0) Console.WriteLine("-");
            else if (a >= 0 && b >= 0 && c >= 0) Console.WriteLine("+");
            else if (a < 0 && b < 0 && c >= 0) Console.WriteLine("+");
            else if (a < 0 && b >= 0 && c < 0) Console.WriteLine("+");
            else if (a >= 0 && b < 0 && c < 0) Console.WriteLine("+");
            else if (a < 0 && b >= 0 && c >= 0) Console.WriteLine("-");
            else if (a >= 0 && b < 0 && c >= 0) Console.WriteLine("-");
            else if (a >= 0 && b >= 0 && c < 0) Console.WriteLine("-");
            Console.ReadKey();
        }
    }
}
```

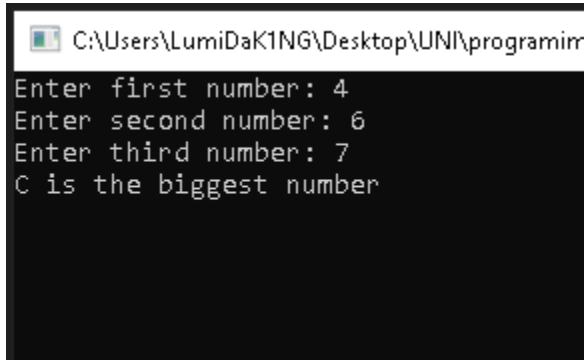


3. Write a program that finds the biggest of three integers, using nested if statements.

```
using System;

namespace ex3
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter first number: ");
            int a = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter second number: ");
            int b = Convert.ToInt32(Console.ReadLine());
            Console.Write("Enter third number: ");
            int c = Convert.ToInt32(Console.ReadLine());

            if(a > b & a > c)
            {
                Console.WriteLine("A is the biggest number");
            }
            else if(c > a & c > b)
            {
                Console.WriteLine("C is the biggest number");
            }
            else if(b > a & b > c)
            {
                Console.WriteLine("B is the biggest number");
            }
            Console.ReadKey();
        }
    }
}
```



```
C:\Users\LumiDaK1NG\Desktop\UNI\programir
Enter first number: 4
Enter second number: 6
Enter third number: 7
C is the biggest number
```

4. Sort 3 real numbers in descending order. Use nested if statements.

```
using System;

namespace ex4
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter first number: ");
            int a = Int32.Parse(Console.ReadLine());
            Console.Write("Enter second number: ");
            int b = Int32.Parse(Console.ReadLine());
            Console.Write("Enter third number: ");
            int c = Int32.Parse(Console.ReadLine());

            if (a < b)
            {
                if (a < c)
                {
                    a = a + c;
                    c = a - c;
                    a = a - c;

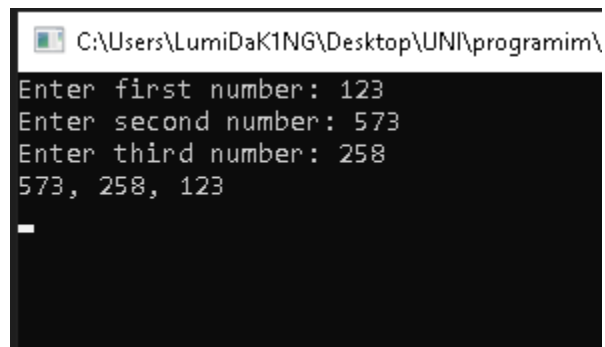
                    if (b > c)
                    {
                        a = a + b;
                        b = a - b;
                        a = a - b;
                    }
                }
                else if (a >= c)
                {
                    a = a + b;
                    b = a - b;
                    a = a - b;
                }
            }
            else if (a == b)
            {
                if (a < c)
                {

```

```

        a = a + c;
        c = a - c;
        a = a - c;
    }
}
else
{
    if (b < c)
    {
        b = b + c;
        c = b - c;
        b = b - c;
    }
    if (a < b)
    {
        a = a + b;
        b = a - b;
        a = a - b;
    }
}
Console.WriteLine("{0}, {1}, {2}", a, b, c);
Console.ReadKey();
}
}
}

```



```

C:\Users\LumiDaK1NG\Desktop\UN\programim\
Enter first number: 123
Enter second number: 573
Enter third number: 258
573, 258, 123
_

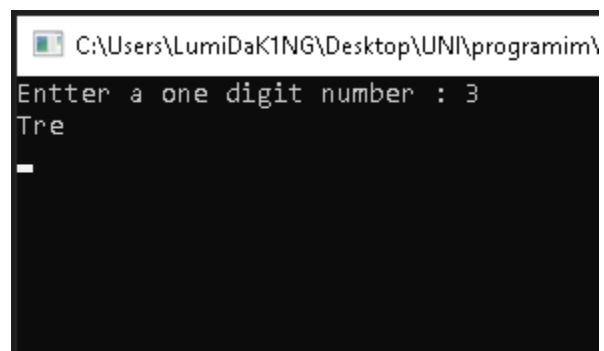
```

5. Write a program that asks for a digit (0-9), and depending on the input, shows the digit as a word (in English). Use a switch statement.

```
using System;

namespace ex5
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter a one digit number : ");
            int num = Convert.ToInt32(Console.ReadLine());

            switch (num)
            {
                case 0: Console.WriteLine("Zero"); break;
                case 1: Console.WriteLine("Një"); break;
                case 2: Console.WriteLine("Dy"); break;
                case 3: Console.WriteLine("Tre"); break;
                case 4: Console.WriteLine("Katër"); break;
                case 5: Console.WriteLine("Pesë"); break;
                case 6: Console.WriteLine("Gjashtë"); break;
                case 7: Console.WriteLine("Shtatë"); break;
                case 8: Console.WriteLine("Tetë"); break;
                case 9: Console.WriteLine("Nëntë"); break;
                default: Console.WriteLine("Wrong input"); break;
            }
            Console.ReadKey();
        }
    }
}
```

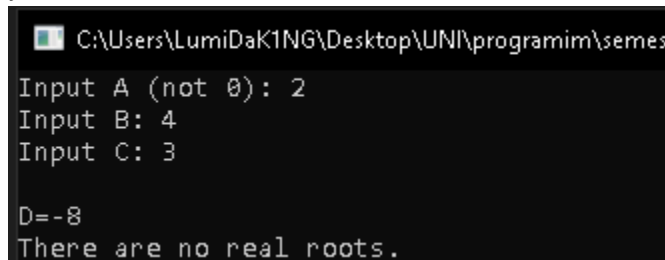


6. Write a program that gets the coefficients a, b and c of a quadratic equation: $ax^2 + bx + c$, calculates and prints its real roots (if they exist). Quadratic equations may have 0, 1 or 2 real roots.

```
using System;

namespace ex6
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Input A (not 0): ");
            sbyte a = Convert.ToSByte(Console.ReadLine());
            Console.WriteLine("Input B: ");
            sbyte b = Convert.ToSByte(Console.ReadLine());
            Console.WriteLine("Input C: ");
            sbyte c = Convert.ToSByte(Console.ReadLine());

            sbyte d = (sbyte)(b * b - 4 * a * c);
            if (d < 0)
                Console.WriteLine("\nD={0}\nThere are no real roots.", d);
            else if (d == 0)
            {
                sbyte x1 = (sbyte)(-b / 2 * a);
                Console.WriteLine("\nX={0}", x1);
            }
            else
            {
                sbyte x1 = (sbyte)((-b + Math.Sqrt(d)) / (2 * a));
                sbyte x2 = (sbyte)((-b - Math.Sqrt(d)) / (2 * a));
                Console.WriteLine("\nX1={0}\nX2={1}", x1, x2);
            }
            Console.ReadKey();
        }
    }
}
```



```
C:\Users\LumiDaK1NG\Desktop\UNI\programim\semes
Input A (not 0): 2
Input B: 4
Input C: 3
D=-8
There are no real roots.
```

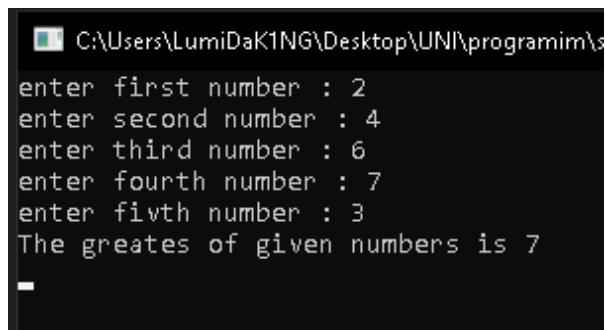
7. Write a program that finds the greatest of given 5 numbers.

```
using System;

namespace ex7
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("enter first number : ");
            int a = Convert.ToInt32(Console.ReadLine());
            Console.Write("enter second number : ");
            int b = Convert.ToInt32(Console.ReadLine());
            Console.Write("enter third number : ");
            int c = Convert.ToInt32(Console.ReadLine());
            Console.Write("enter fourth number : ");
            int d = Convert.ToInt32(Console.ReadLine());
            Console.Write("enter fifth number : ");
            int e = Convert.ToInt32(Console.ReadLine());

            if (a < b) a = b;
            if (a < c) a = c;
            if (a < d) a = d;
            if (a < e) a = e;

            Console.WriteLine("The greatest of given numbers is {0}", a);
            Console.ReadKey();
        }
    }
}
```



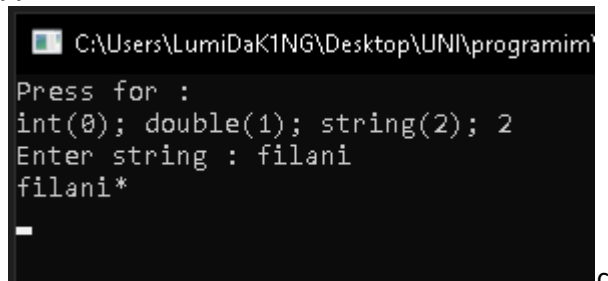
```
C:\Users\LumiDaK1NG\Desktop\UNI\programim\s
enter first number : 2
enter second number : 4
enter third number : 6
enter fourth number : 7
enter fifth number : 3
The greatest of given numbers is 7
_
```


8. Write a program that, depending on the user's choice, inputs int, double or string variable. If the variable is int or double, the program increases it by 1. If the variable is a string, the program appends "*" at the end. Print the result at the console. Use switch statement.

```
using System;

namespace ex8
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Press for :");
            Console.Write("int(0); double(1); string(2); ");
            int choice = Convert.ToInt32(Console.ReadLine());

            switch (choice)
            {
                case 0:
                    Console.Write("Enter num integer : ");
                    int integer = Convert.ToInt32(Console.ReadLine());
                    Console.WriteLine(integer + 1);
                    break;
                case 1:
                    Console.Write("Enter num double : ");
                    double doub = Convert.ToDouble(Console.ReadLine());
                    Console.WriteLine(doub + 1);
                    break;
                case 2:
                    Console.Write("Enter string : ");
                    string str = Convert.ToString(Console.ReadLine());
                    Console.WriteLine(str + "*");
                    break;
            }
            Console.ReadKey();
        }
    }
}
```



```
C:\Users\LumiDaK1NG\Desktop\UNI\programim
Press for :
int(0); double(1); string(2); 2
Enter string : filani
filani*
```

c

9. We are given 5 integer numbers. Write a program that finds those subsets whose sum is 0.
Examples:

- If we are given the numbers {3, -2, 1, 1, 8}, the sum of -2, 1 and 1 is 0.
- If we are given the numbers {3, 1, -7, 35, 22}, there are no subsets with sum 0.

```
using System;

namespace ex9
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter first number: ");
            sbyte first = Convert.ToSByte(Console.ReadLine());
            Console.Write("Enter second number: ");
            sbyte second = Convert.ToSByte(Console.ReadLine());
            Console.Write("Enter third number: ");
            sbyte third = Convert.ToSByte(Console.ReadLine());
            Console.Write("Enter fourth number: ");
            sbyte fourth = Convert.ToSByte(Console.ReadLine());
            Console.Write("Enter fifth number: ");
            sbyte fifth = Convert.ToSByte(Console.ReadLine());

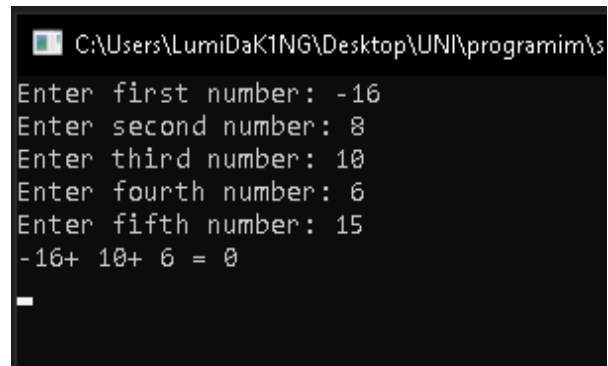
            if (first + second == 0)
                Console.WriteLine("{0}+ {1} = 0", first, second);
            if (first + third == 0)
                Console.WriteLine("{0}+ {1} = 0", first, third);
            if (first + fourth == 0)
                Console.WriteLine("{0}+ {1} = 0", first, fourth);
            if (first + fifth == 0)
                Console.WriteLine("{0}+ {1} = 0", first, fifth);
            if (second + third == 0)
                Console.WriteLine("{0}+ {1} = 0", second, third);
            if (second + fourth == 0)
                Console.WriteLine("{0}+ {1} = 0", second, fourth);
            if (second + fifth == 0)
                Console.WriteLine("{0}+ {1} = 0", second, fifth);
            if (third + fourth == 0)
                Console.WriteLine("{0}+ {1} = 0", third, fourth);
            if (third + fifth == 0)
```

```

        Console.WriteLine("{0}+ {1} = 0", third, fifth);
    if (fourth + fifth == 0)
        Console.WriteLine("{0}+ {1} = 0", fourth, fifth);
    if (first + second + third == 0)
        Console.WriteLine("{0}+ {1}+ {2} = 0", first, second, third);
    if (first + second + fourth == 0)
        Console.WriteLine("{0}+ {1}+ {2} = 0", first, second, fourth);
    if (first + second + fifth == 0)
        Console.WriteLine("{0}+ {1}+ {2} = 0", first, second, fifth);
    if (first + third + fourth == 0)
        Console.WriteLine("{0}+ {1}+ {2} = 0", first, third, fourth);
    if (first + third + fifth == 0)
        Console.WriteLine("{0}+ {1}+ {2} = 0", first, third, fifth);
    if (second + third + fourth == 0)
        Console.WriteLine("{0}+ {1}+ {2} = 0", second, third, fourth);
    if (second + third + fifth == 0)
        Console.WriteLine("{0}+ {1}+ {2} = 0", second, third, fifth);
    if (third + fourth + fifth == 0)
        Console.WriteLine("{0}+ {1}+ {2} = 0", third, fourth, fifth);

    Console.ReadKey();
}
}
}

```



```

C:\Users\LumiDaK1NG\Desktop\UNI\programim\s
Enter first number: -16
Enter second number: 8
Enter third number: 10
Enter fourth number: 6
Enter fifth number: 15
-16+ 10+ 6 = 0
_

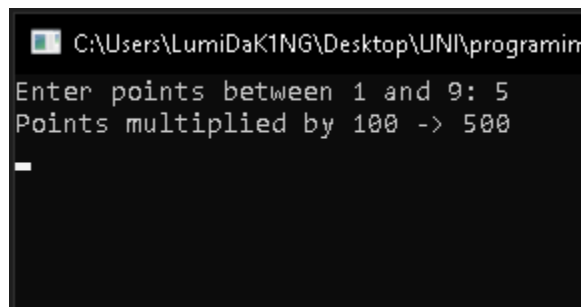
```

10. Write a program that applies bonus points to given scores in the range [1...9] by the following rules:

- If the score is between 1 and 3, the program multiplies it by 10.
- If the score is between 4 and 6, the program multiplies it by 100.
- If the score is between 7 and 9, the program multiplies it by 1000.
- If the score is 0 or more than 9, the program prints an error message.

```
using System;

namespace ex10
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter points between 1 and 9: ");
            int points = Convert.ToInt32(Console.ReadLine());
            if (points >= 1 && points <= 3)
                Console.WriteLine("Points multiplied by 10 -> {0}", points * 10);
            else if (points >= 4 && points <= 6)
                Console.WriteLine("Points multiplied by 100 -> {0}", points * 100);
            else if (points >= 7 && points <= 9)
                Console.WriteLine("Points multiplied by 1000 -> {0}", points * 1000);
            else
                Console.WriteLine("Wrong Input!");
            Console.ReadKey();
        }
    }
}
```

A screenshot of a Windows console window. The title bar shows the file path "C:\Users\LumiDaK1NG\Desktop\UNI\programin...". The console output displays the prompt "Enter points between 1 and 9: 5" followed by the result "Points multiplied by 100 -> 500". A cursor is visible on the line below the output.

```
C:\Users\LumiDaK1NG\Desktop\UNI\programin...
Enter points between 1 and 9: 5
Points multiplied by 100 -> 500
_
```

11. * Write a program that converts a number in the range [0...999] to words, corresponding to the English pronunciation. Examples:

- 0 --> "Zero"

- 12 --> "Twelve"

- 98 --> "Ninety eight"

- 273 --> "Two hundred seventy three"

- 400 --> "Four hundred"

- 501 --> "Five hundred and one"

- 711 --> "Seven hundred and eleven"

```
using System;
```

```
namespace ex11
```

```
{
```

```
    class Program
```

```
    {
```

```
        static void Main(string[] args)
```

```
        {
```

```
            Console.Write("Enter a number between 0 and 999: ");
```

```
            short number = Convert.ToInt16(Console.ReadLine());
```

```
            byte hundreds = (byte)(number / 100 | 0);
```

```
            byte tensAndOnes;
```

```
            if (number > 99) tensAndOnes = (byte)(number % 100);
```

```
            else tensAndOnes = (byte)(number * 1);
```

```
            byte ones = (byte)(number % 10);
```

```
            switch (hundreds)
```

```
            {
```

```
                case 1: Console.Write("One hundred "); break;
```

```
                case 2: Console.Write("Two hundred "); break;
```

```
                case 3: Console.Write("Three hundred "); break;
```

```
                case 4: Console.Write("Four hundred "); break;
```

```
                case 5: Console.Write("Five hundred "); break;
```

```
                case 6: Console.Write("Six hundred "); break;
```

```
case 7: Console.Write("Seven hundred "); break;
case 8: Console.Write("Eight hundred "); break;
case 9: Console.Write("Nine hundred "); break;
}
```

```
if (hundreds >= 1 && tensAndOnes >= 1) Console.Write("and ");
```

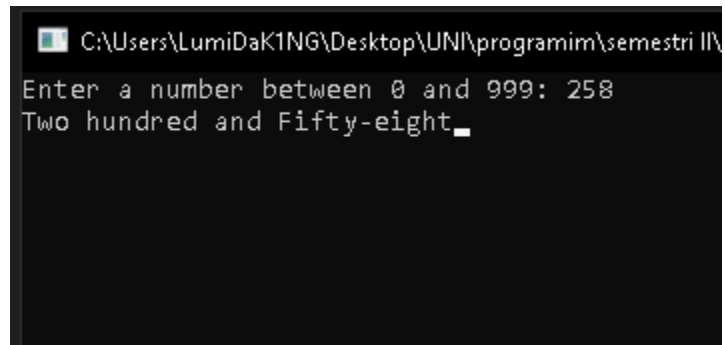
```
if (tensAndOnes >= 20 && tensAndOnes < 30) Console.Write("Twenty");
else if (tensAndOnes >= 30 && tensAndOnes < 40) Console.Write("Thirty");
else if (tensAndOnes >= 40 && tensAndOnes < 50) Console.Write("Forty");
else if (tensAndOnes >= 50 && tensAndOnes < 60) Console.Write("Fifty");
else if (tensAndOnes >= 60 && tensAndOnes < 70) Console.Write("Sixty");
else if (tensAndOnes >= 70 && tensAndOnes < 80) Console.Write("Seventy");
else if (tensAndOnes >= 80 && tensAndOnes < 90) Console.Write("Eighty");
else if (tensAndOnes >= 90 && tensAndOnes < 100) Console.Write("Ninety");
```

```
switch (tensAndOnes)
{
    case 1: Console.Write("One"); break;
    case 2: Console.Write("Two"); break;
    case 3: Console.Write("Three"); break;
    case 4: Console.Write("Four"); break;
    case 5: Console.Write("Five"); break;
    case 6: Console.Write("Six"); break;
    case 7: Console.Write("Seven"); break;
    case 8: Console.Write("Eight"); break;
    case 9: Console.Write("Nine"); break;
    case 10: Console.Write("Ten"); break;
    case 11: Console.Write("Eleven"); break;
    case 12: Console.Write("Twelve"); break;
    case 13: Console.Write("Thirteen"); break;
    case 14: Console.Write("Fourteen"); break;
    case 15: Console.Write("Fifteen"); break;
    case 16: Console.Write("Sixteen"); break;
    case 17: Console.Write("Seventeen"); break;
    case 18: Console.Write("Eighteen"); break;
    case 19: Console.Write("Nineteen"); break;
}
```

```
if (tensAndOnes > 20)
```

```
{
    switch (ones)
    {
        case 1: Console.Write("-one"); break;
        case 2: Console.Write("-two"); break;
```

```
        case 3: Console.Write("-three"); break;
        case 4: Console.Write("-four"); break;
        case 5: Console.Write("-five"); break;
        case 6: Console.Write("-six"); break;
        case 7: Console.Write("-seven"); break;
        case 8: Console.Write("-eight"); break;
        case 9: Console.Write("-nine"); break;
    }
}
if (number == 0) Console.Write("Zero");
Console.ReadLine();
Console.ReadKey();
}
}
```



```
C:\Users\LumiDaK1NG\Desktop\UNI\programim\semestri II\
Enter a number between 0 and 999: 258
Two hundred and Fifty-eight_
```