Ardit Krasniqi
Drejtimi: Shkenca Kompjuterike
Kampusi: Prishtinë/ Lipjan
Viti: I parë
Statusi: I rregullt

Chapter 2

1. **Declare several variables** by selecting for each one of them the most appropriate of the
types **sbyte**, **byte**, **short**, **ushort**, **int**, **uint**, **long** and **ulong** in order to assign them the following values: 52,130; -115; 4825932; 97;
-10000; 20000; 224; 970,700,000; 112; -44; -1,000,000; 1990; 123456789123456789.
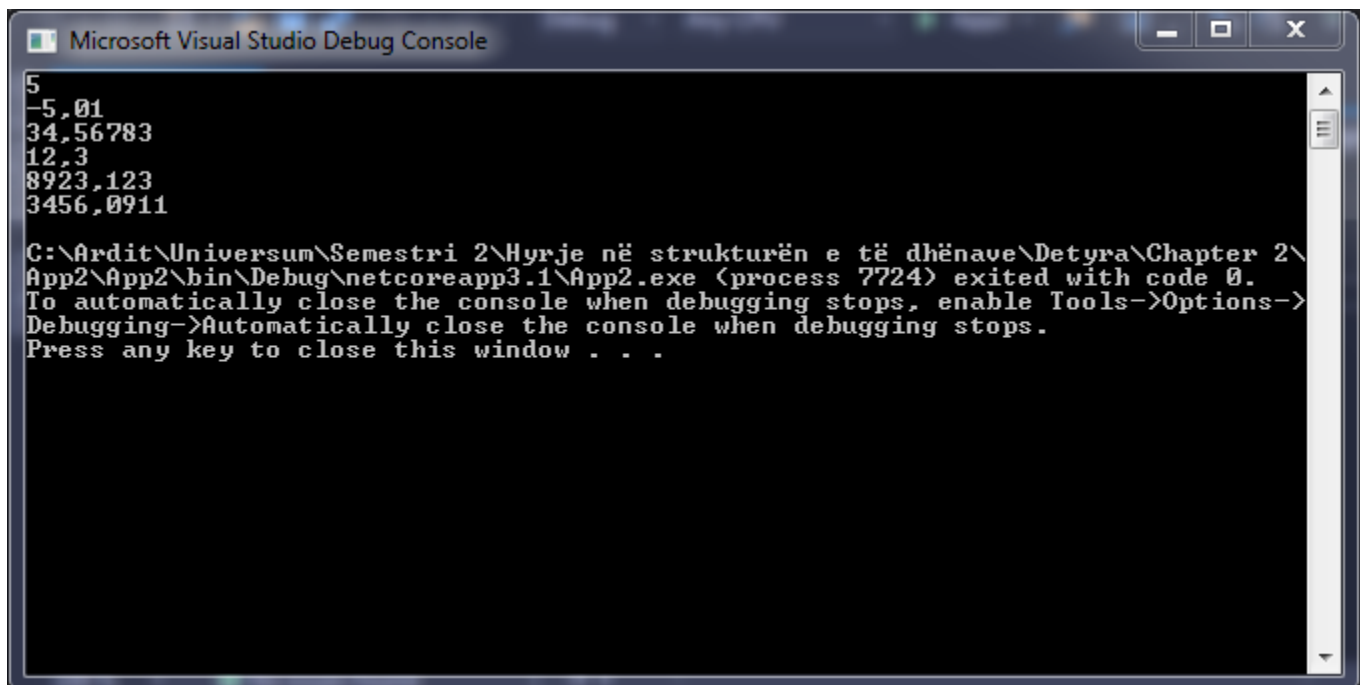
```csharp
using System;

namespace App1
{
    class Program
    {
        static void Main(string[] args)
        {
            ushort _1 = 52130;
            sbyte _2 = -115;
            uint _3 = 4825932;
            byte _4 = 97;
            short _5 = -10000;
            short _6 = 20000;
            byte _7 = 224;
            uint _8 = 970700000;
            sbyte _9 = 112;
            sbyte _10 = -44;
            int _11 = -1000000;
            ushort _12 = 1992;
            long _13 = 123456789123456789;

            Console.WriteLine(_1 +"\n"+ _2 + "\n" + _3 + "\n" +_4 + "\n" + _5 + "\n" + _6 + "\n" + _7 + "\n"
 + _8 + "\n" + _9 + "\n" + _10 + "\n" + _11 + "\n" + _12 + "\n" + _13 + "\n");
        }
    }
}
```
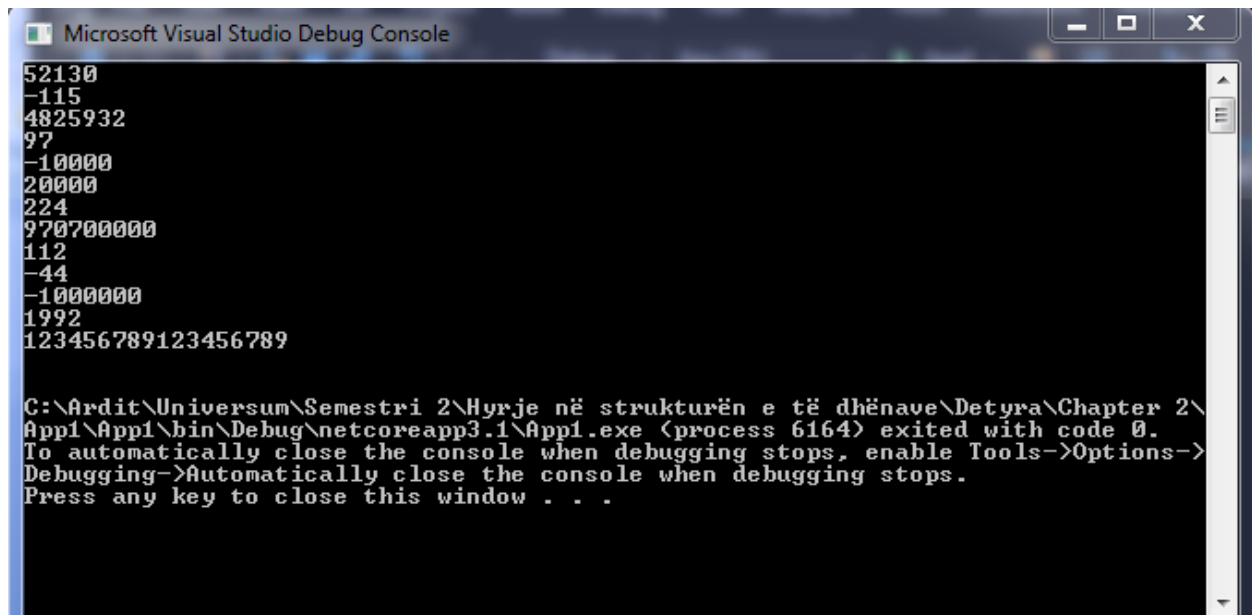
2. Which of the following values can be assigned to variables of type **float**, **double** and **decimal**: 5, -5.01, 34.567839023; 12.345; 8923.1234857; 3456.0911248759565421512566683467?

```csharp
using System;

namespace App2
{
    class Program
    {
        static void Main(string[] args)
        {
            float firstNumber = 5f;
            float secondNumber = -5.01f;
            double thirdNumber = 34.56783d;
            decimal fourthNumber = 12.3m;
            double fifthNumber = 8923.123d;
            decimal sixthNumber = 3456.0911m;


            Console.WriteLine(firstNumber);
            Console.WriteLine(secondNumber);
            Console.WriteLine(thirdNumber);
            Console.WriteLine(fourthNumber);
            Console.WriteLine(fifthNumber);
            Console.WriteLine(sixthNumber);
        }
    }
}
```

Microsoft Visual Studio Debug Console
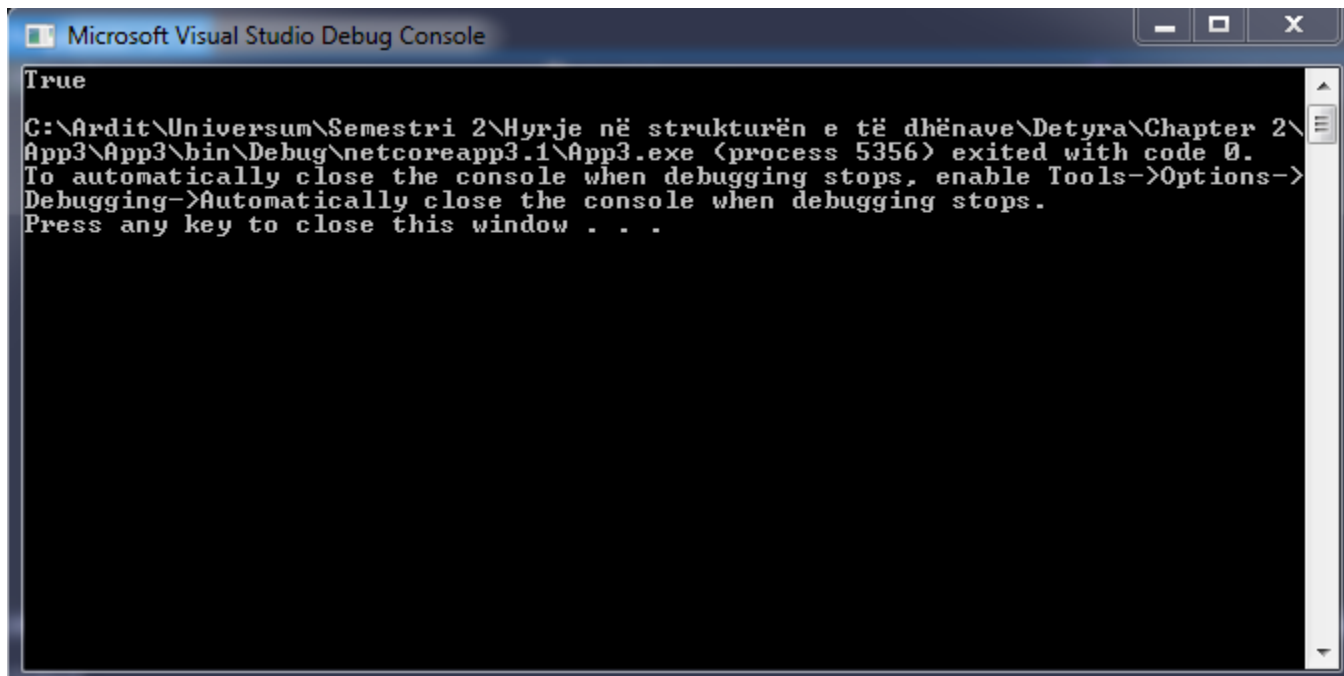```
5
-5,01
34,56783
12,3
8923,123
3456,0911

C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 2\
App2\App2\bin\Debug\netcoreapp3.1\App2.exe (process 7724) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->
Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

3. Write a program, which **compares correctly two real numbers** with accuracy at least **0.000001**.

```csharp
using System;

namespace App3
{
    class Program
    {
        static void Main(string[] args)
        {
            double firstNumber = 10.000001d;
            double secondNumber = 10.000001d;

            bool equal = Math.Abs(firstNumber - secondNumber) < 0.000001;
            Console.WriteLine(equal);

        }
    }
}
```
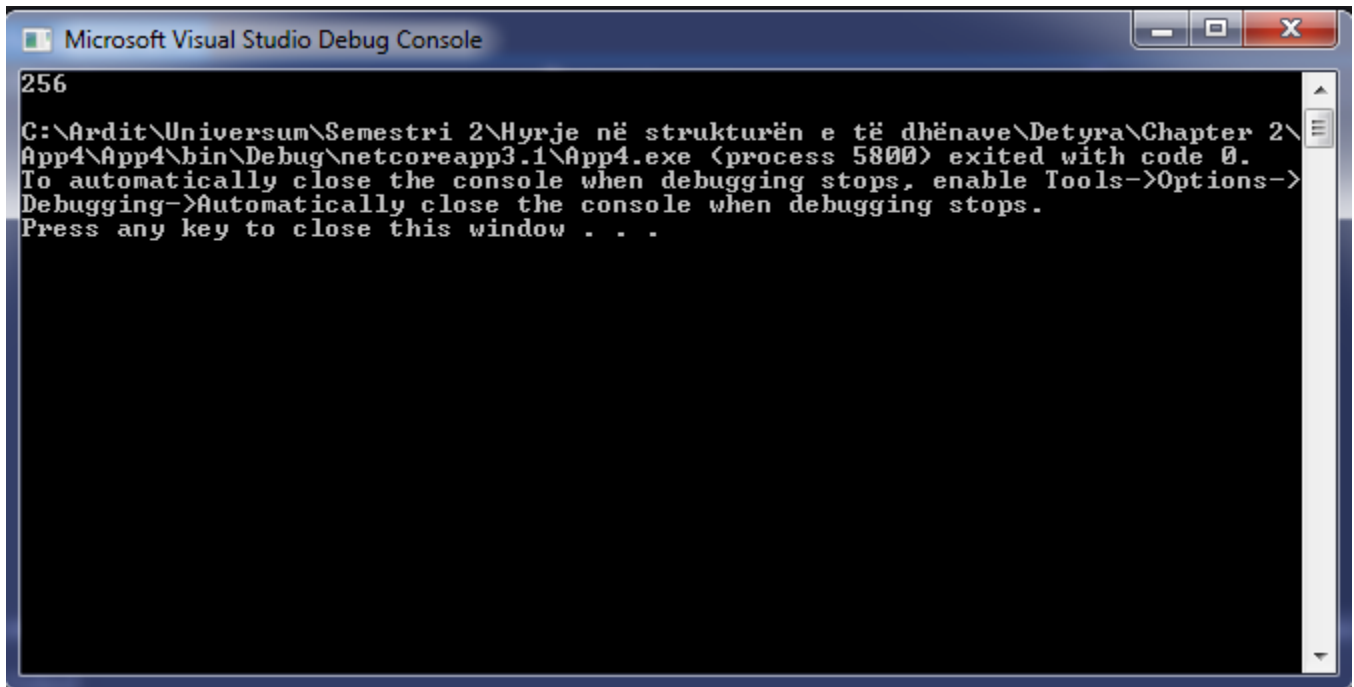
4. **Initialize** a variable of type **int** with a value of 256 in **hexadecimal** format (256 is 100 in a numeral system with base 16).

```csharp
using System;

namespace App4
{
    class Program
    {
        static void Main(string[] args)
        {
            int number = 0x100;
            Console.WriteLine(number);
        }
    }
}
```
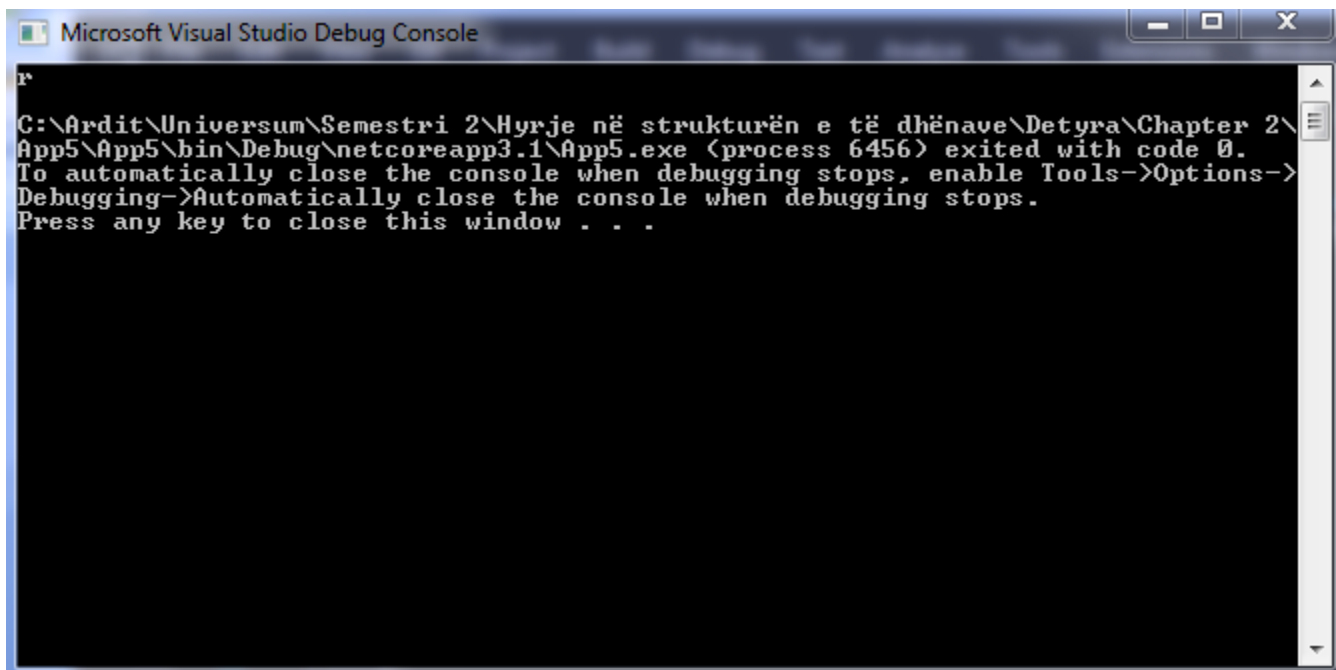
5. Declare a variable of type **char** and assign as a value the character, which has **Unicode** code, 72 (use the Windows calculator in order to find hexadecimal representation of 72).

```csharp
using System;

namespace App5
{
    class Program
    {
        static void Main(string[] args)
        {
            char number = '\u0072';
            Console.WriteLine(number);
        }
    }
}
```
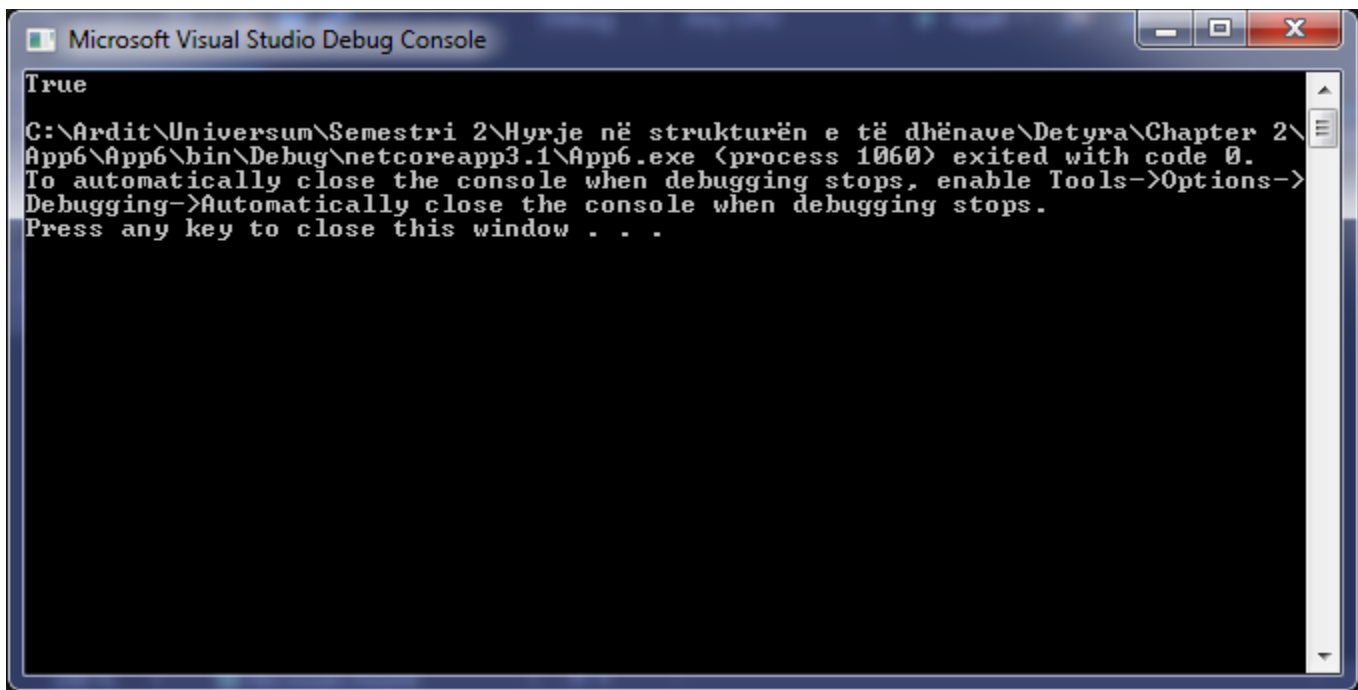
6. Declare a variable **isMale** of type **bool** and assign a value to it depending on your gender.

```csharp
using System;

namespace App6
{
    class Program
    {
        static void Main(string[] args)
        {
            bool isMale = true;
            Console.WriteLine(isMale);
        }
    }
}
```
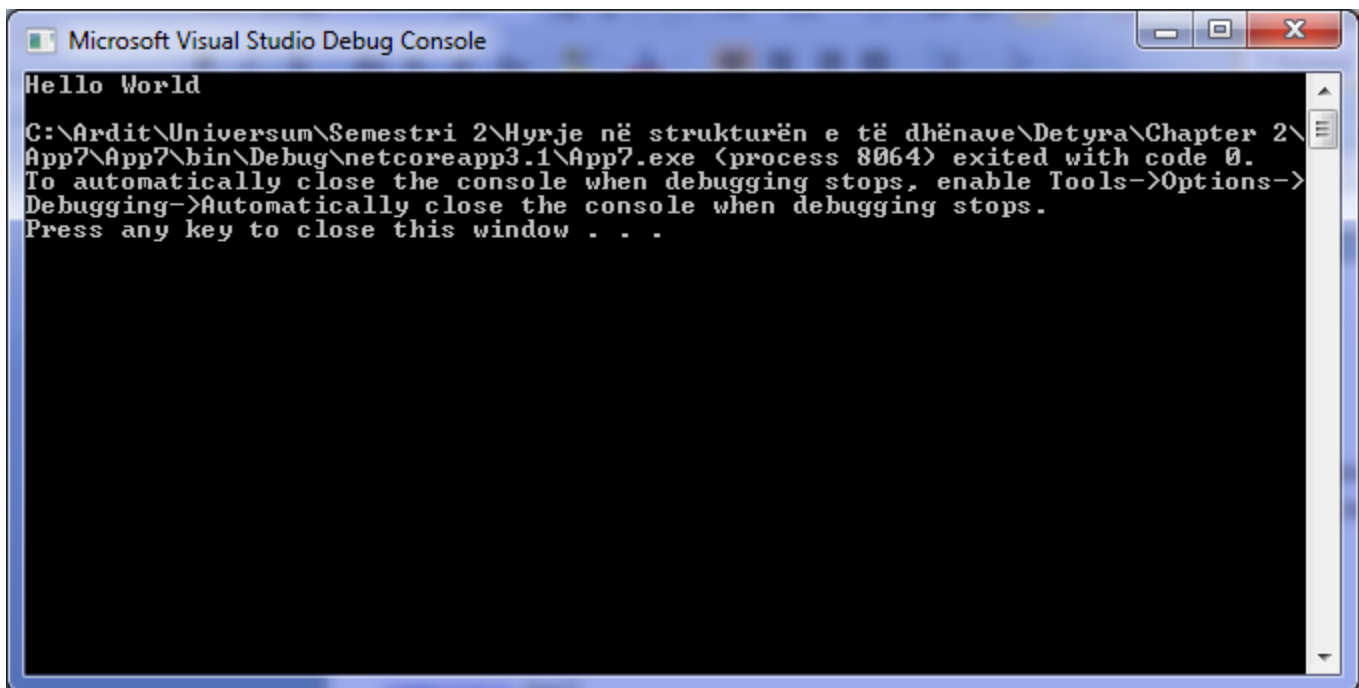
7. Declare two variables of type **string** with values "Hello" and "World". Declare a variable of type **object**. Assign to this variable the value obtained of concatenation of the two string variables (add space if necessary). Print the variable of type **object**.

```csharp
using System;

namespace App7
{
    class Program
    {
        static void Main(string[] args)
        {
            var firstWord = "Hello";
            var secondWord = "World";
            object theSentence = firstWord + " " + secondWord;
            Console.WriteLine(theSentence);
        }
    }
}
```
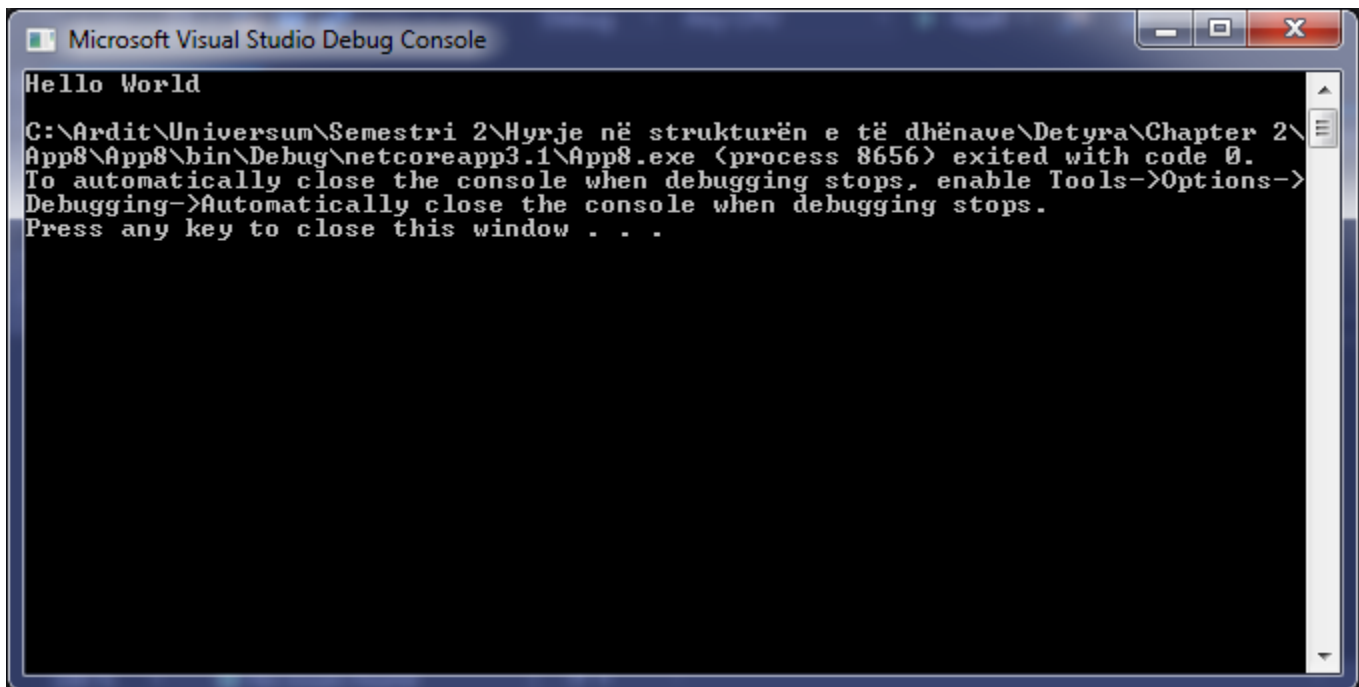
8. Declare two variables of type **string** and assign them values "Hello" and "World". Declare a variable of type **object** and assign to it the value obtained of concatenation of the two variables of type **string** (do not miss the space in the middle). Declare a third variable of type **string** and initialize it with the value of the variable of type **object** (you should use type casting).

```csharp
using System;

namespace App8
{
    class Program
    {
        static void Main(string[] args)
        {
            string firstWord = "Hello";
            string secondWord = "World";
            object Sentence = firstWord + " " + secondWord;
            string theSentence = Sentence.ToString();
            Console.WriteLine(theSentence);

        }
    }
}
```
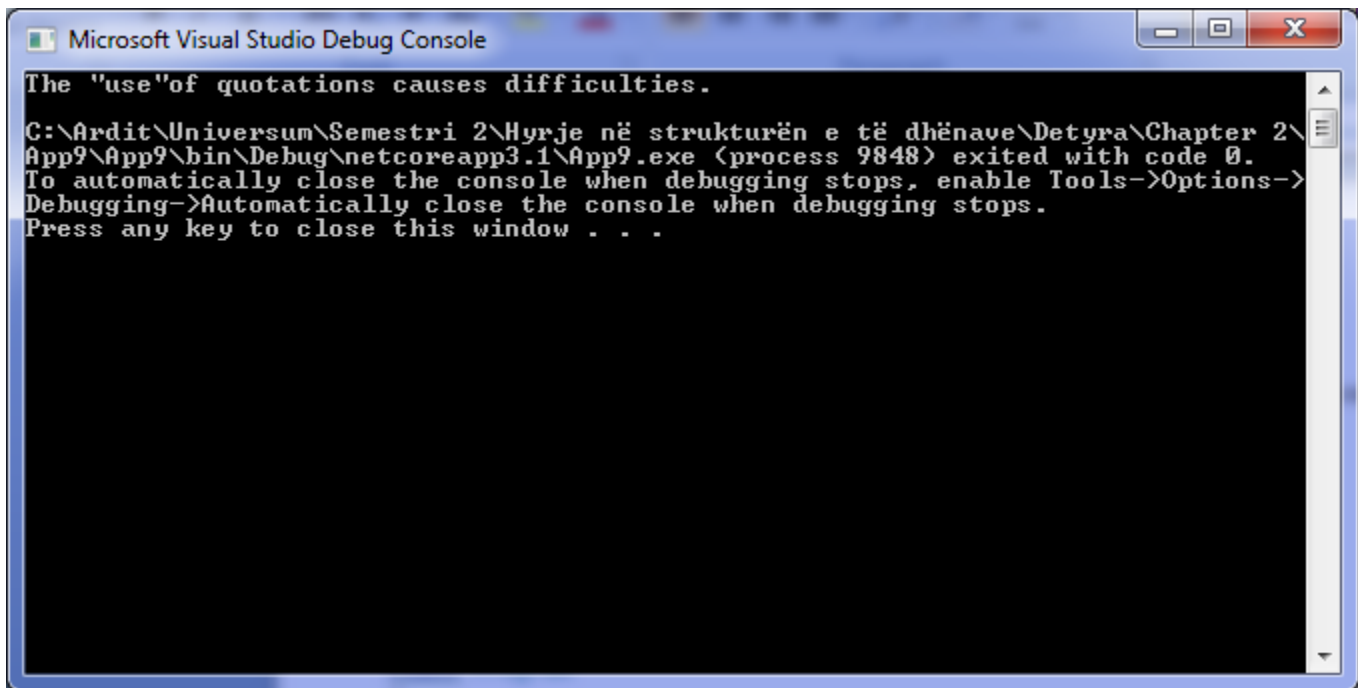
Microsoft Visual Studio Debug Console

```
Hello World

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App8\App8\bin\Debug\netcoreapp3.1\App8.exe (process 8656) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->
Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

9. Declare two variables of type **string** and assign them a value "**The "use" of quotations causes difficulties.**" (without the outer quotes). In one of the variables use quoted string and in the other do not use it.

```csharp
using System;

namespace App9
{
    class Program
    {
        static void Main(string[] args)
        {
            string firstWord = "The \"use\"";
            string secondWord = "of quotations causes difficulties.";

            Console.WriteLine(firstWord + secondWord);
        }
    }
}
```
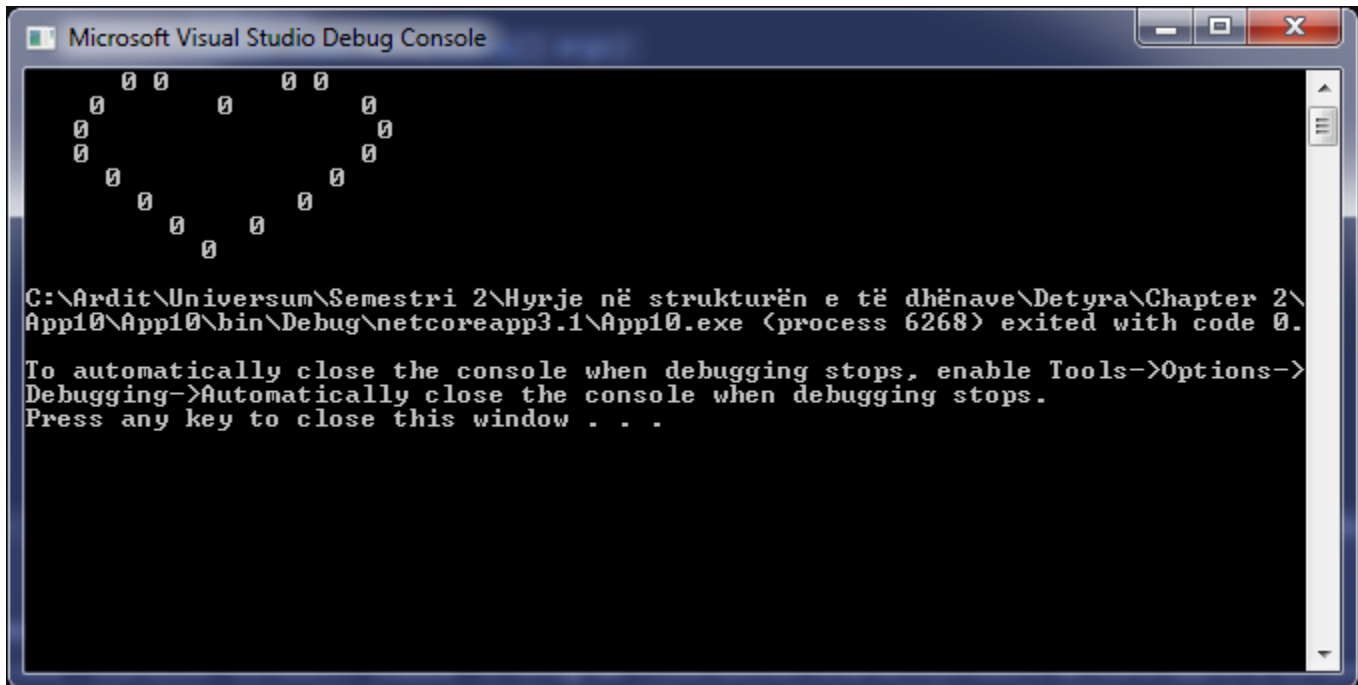
10. Write a program to print a figure in the shape of a **heart** by the sign "**o**".

```csharp
using System;

namespace App10
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("      0 0        0 0");
            Console.WriteLine("    0        0        0 ");
            Console.WriteLine("   0                    0");
            Console.WriteLine("   0                    0");
            Console.WriteLine("     0                0");
            Console.WriteLine("        0          0");
            Console.WriteLine("          0     0");
            Console.WriteLine("            0");
        }
    }
}
```

11. Write a program that prints on the console **isosceles triangle** which sides consist of the copyright character "©".

```csharp
using System;

namespace App11
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("    \u00A9");
            Console.WriteLine("   \u00A9 \u00A9");
            Console.WriteLine("  \u00A9   \u00A9");
            Console.WriteLine(" \u00A9     \u00A9");
            Console.WriteLine("\u00A9\u00A9\u00A9\u00A9\u00A9\u00A9\u00A9\u00A9");
        }
    }
}
```
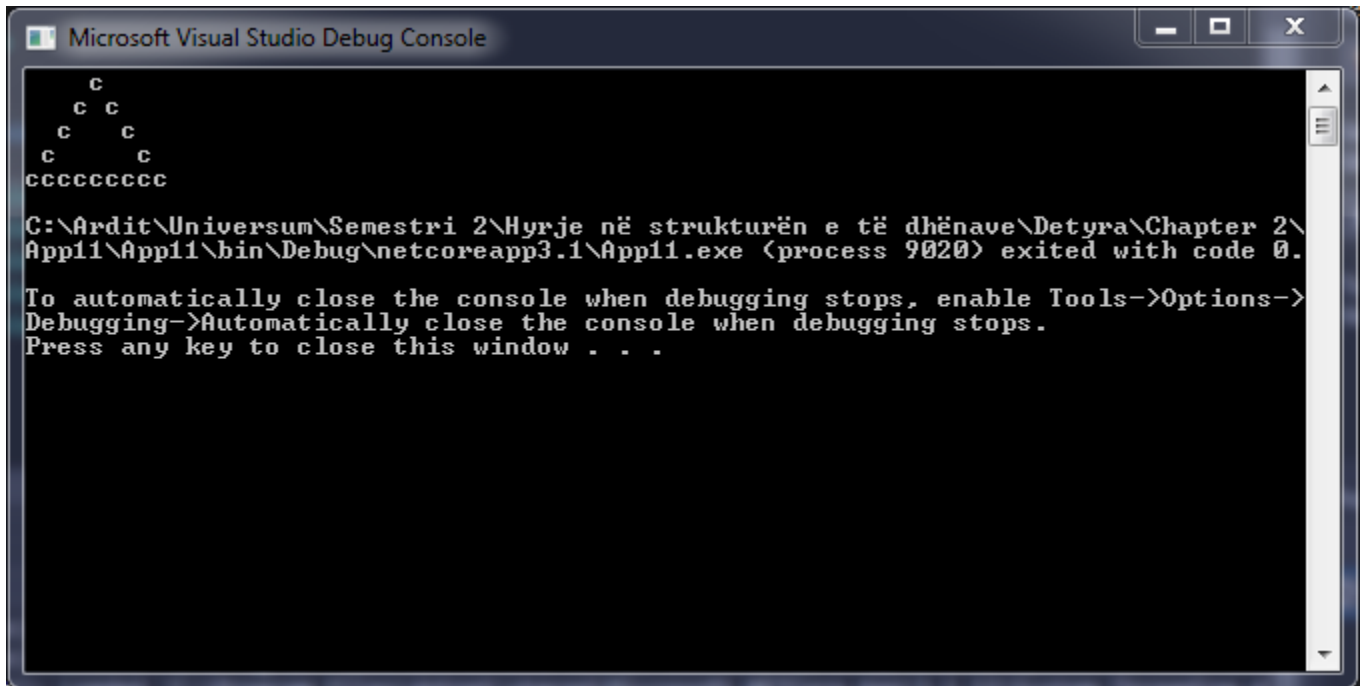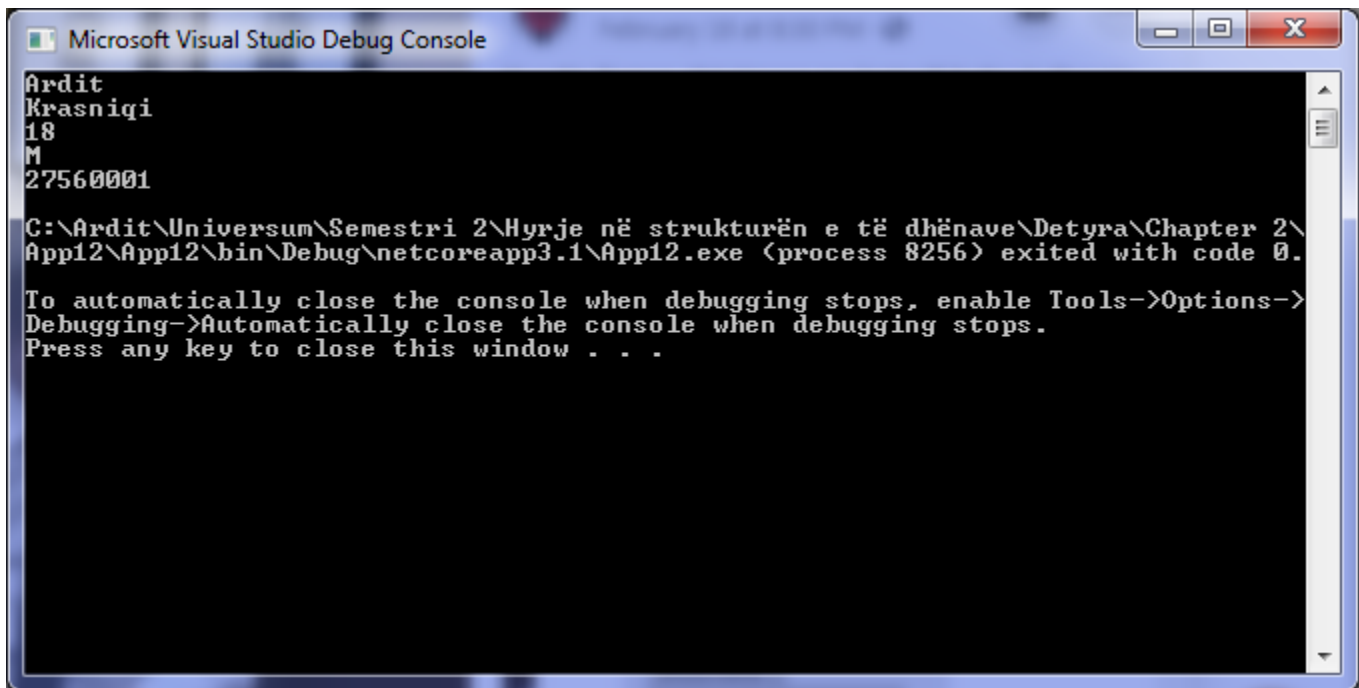
12. A company dealing with marketing wants to keep a data record of its **employees**. Each record should have the following characteristic – first name, last name, age, gender ('m' or 'f') and unique employee number (27560000 to 27569999). **Declare appropriate variables** needed to maintain the information for an employee by using the appropriate data types and attribute names.

```csharp
using System;

namespace App12
{
    class Program
    {
        static void Main(string[] args)
        {
            string emri = "Ardit";
            string mbiemri = "Krasniqi";
            byte mosha = 18;
            char gender = 'M';
            int id = 27560001;


            Console.WriteLine(emri);
            Console.WriteLine(mbiemri);
            Console.WriteLine(mosha);
            Console.WriteLine(gender);
            Console.WriteLine(id);
        }
    }
}
```

```
Microsoft Visual Studio Debug Console

Ardit
Krasniqi
18
M
27560001

C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 2\
App12\App12\bin\Debug\netcoreapp3.1\App12.exe (process 8256) exited with code 0.

To automatically close the console when debugging stops, enable Tools->Options->
Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```
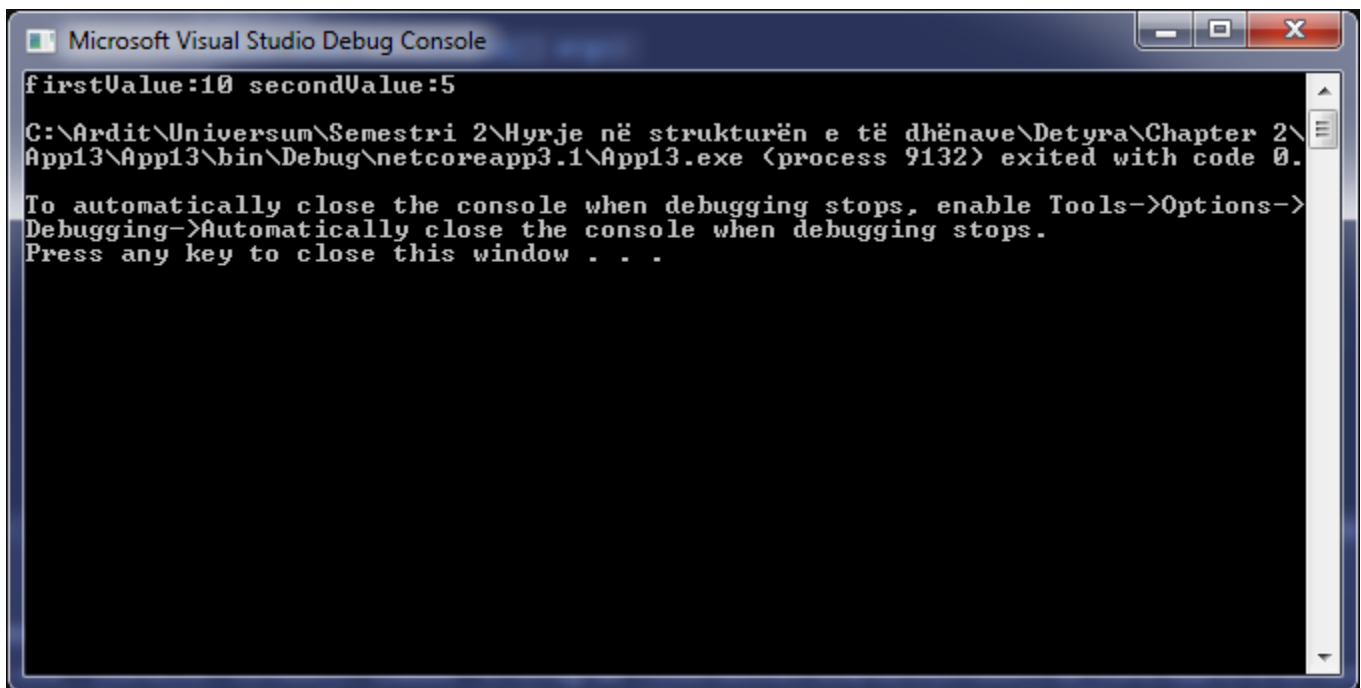
13. Declare two variables of type **int**. Assign to them values 5 and 10 respectively. **Exchange (swap) their values** and print them.

```csharp
using System;

namespace App13
{
    class Program
    {
        static void Main(string[] args)
        {
            int firstValue = 5;
            int secondValue = 10;

            firstValue = firstValue + secondValue;
            secondValue = firstValue - secondValue;
            firstValue = firstValue - secondValue;

            Console.WriteLine("firstValue:{0} secondValue:{1}", firstValue, secondValue);

        }
    }
}
```