

**Ardit Krasniqi**

**Drejtimi: Shkenca Kompjuterike**

**Kampusi: Prishtinë/ Lipjan**

**Viti: I parë**

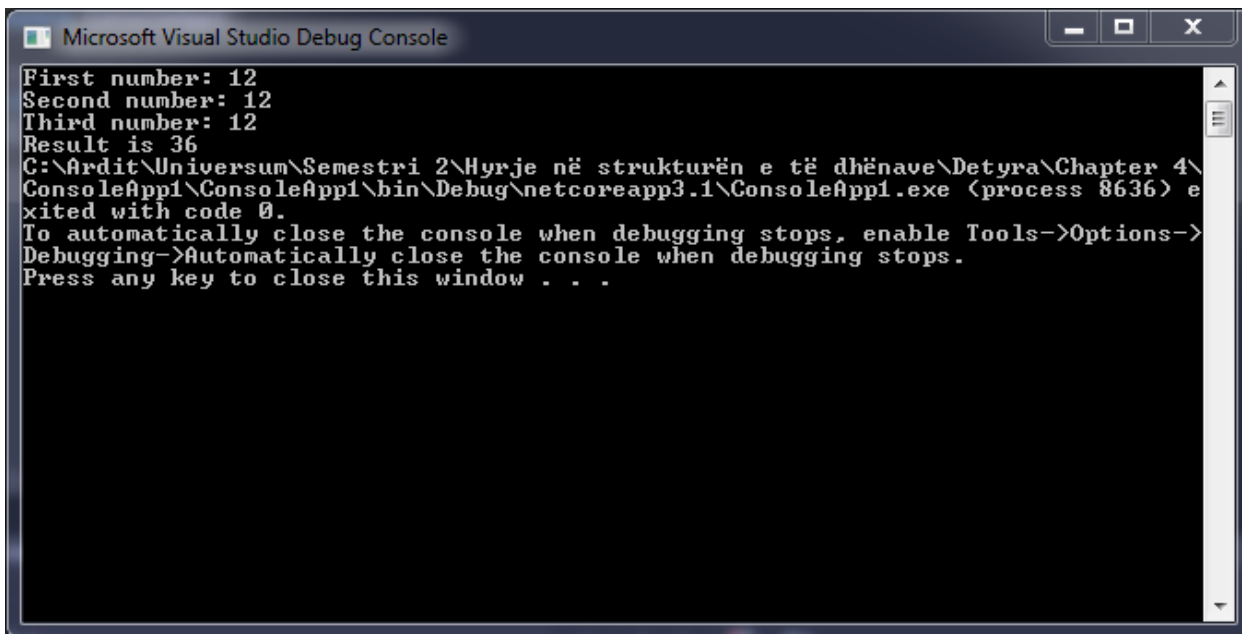
**Statusi: I rregullt**

**Chapter 4**

1. Write a program that reads from the console three numbers of type int and prints their sum.

```
using System;

namespace ConsoleApp1
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.Write("First number: ");
            int a = Int32.Parse(Console.ReadLine());
            Console.Write("Second number: ");
            int b = Int32.Parse(Console.ReadLine());
            Console.Write("Third number: ");
            int c = Int32.Parse(Console.ReadLine());
            Console.WriteLine("Result is {0}", a + b + c);
        }
    }
}
```



```
Microsoft Visual Studio Debug Console

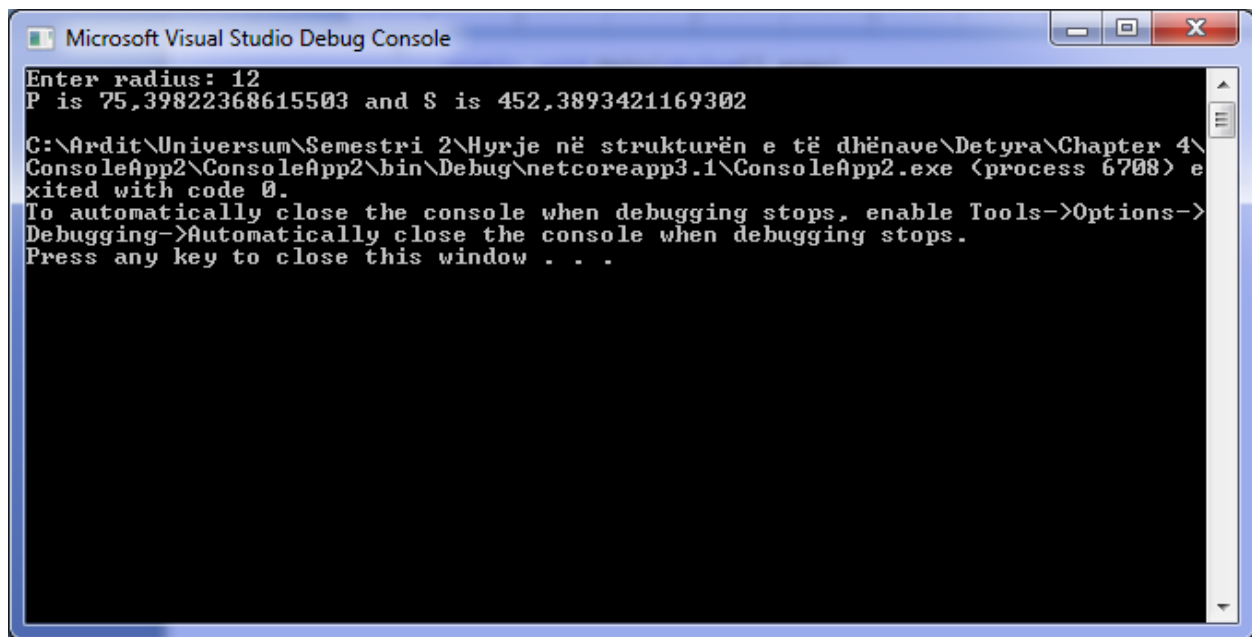
First number: 12
Second number: 12
Third number: 12
Result is 36
C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\
ConsoleApp1\ConsoleApp1\bin\Debug\netcoreapp3.1\ConsoleApp1.exe (process 8636) e
xited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->
Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

2. Write a program that reads from the console the radius "r" of a circle and prints its perimeter and area.

```
using System;
```

```
namespace ConsoleApp2
```

```
{  
    class Program  
    {  
        static void Main(string[] args)  
        {  
            Console.Write("Enter radius: ");  
            int r = Int32.Parse(Console.ReadLine());  
            Console.WriteLine("P is {0} and S is {1}", 2 * Math.PI * r, Math.PI * r * r);  
        }  
    }  
}
```

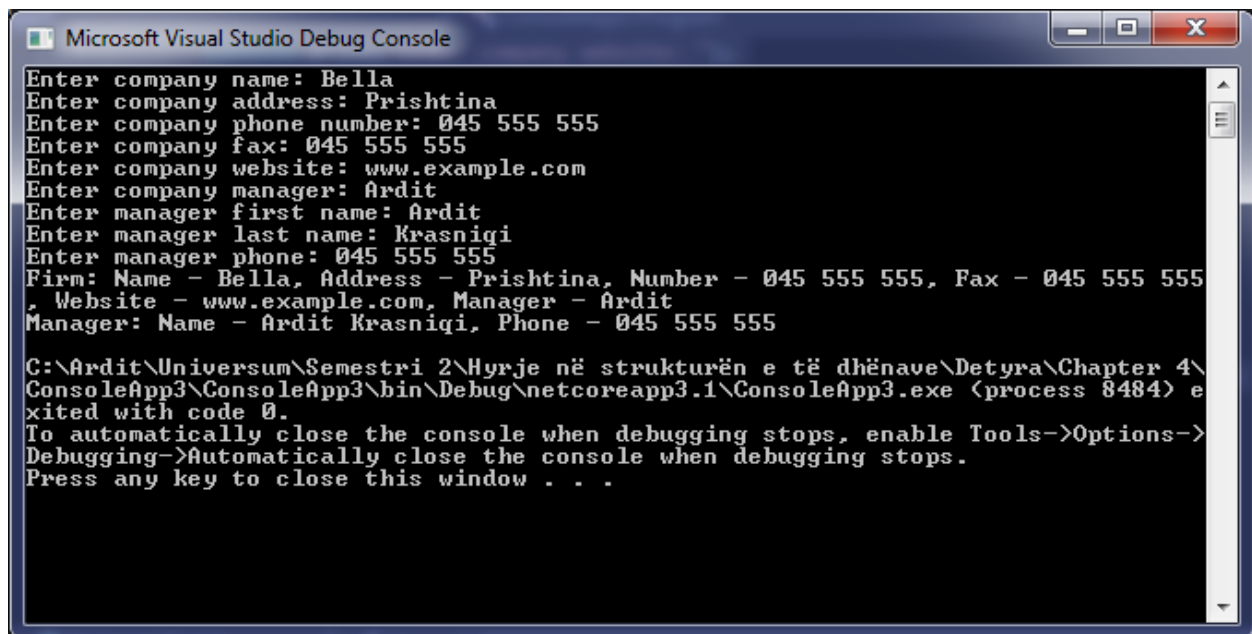


3. A given company has name, address, phone number, fax number, web site and manager. The manager has name, surname and phone number. Write a program that reads information about the company and its manager and then prints it on the console.

```
using System;
```

```
namespace ConsoleApp3
```

```
{  
    class Program  
    {  
        static void Main(string[] args)  
        {  
            Console.Write("Enter company name: ");  
            string compName = Console.ReadLine();  
            Console.Write("Enter company address: ");  
            string compAddr = Console.ReadLine();  
            Console.Write("Enter company phone number: ");  
            string compPhone = Console.ReadLine();  
            Console.Write("Enter company fax: ");  
            string compFax = Console.ReadLine();  
            Console.Write("Enter company website: ");  
            string compSite = Console.ReadLine();  
            Console.Write("Enter company manager: ");  
            string compManager = Console.ReadLine();  
            Console.Write("Enter manager first name: ");  
            string managerFName = Console.ReadLine();  
            Console.Write("Enter manager last name: ");  
            string managerLName = Console.ReadLine();  
            Console.Write("Enter manager phone: ");  
            string managerPhone = Console.ReadLine();  
  
            Console.WriteLine("Firm: Name - {0}, Address - {1}, Number - {2}, Fax - {3}, " +  
                "Website - {4}, Manager - {5}",  
                compName, compAddr, compPhone, compFax, compSite, compManager);  
            Console.WriteLine("Manager: Name - {0} {1}, Phone - {2}",  
                managerFName, managerLName, managerPhone);  
        }  
    }  
}
```



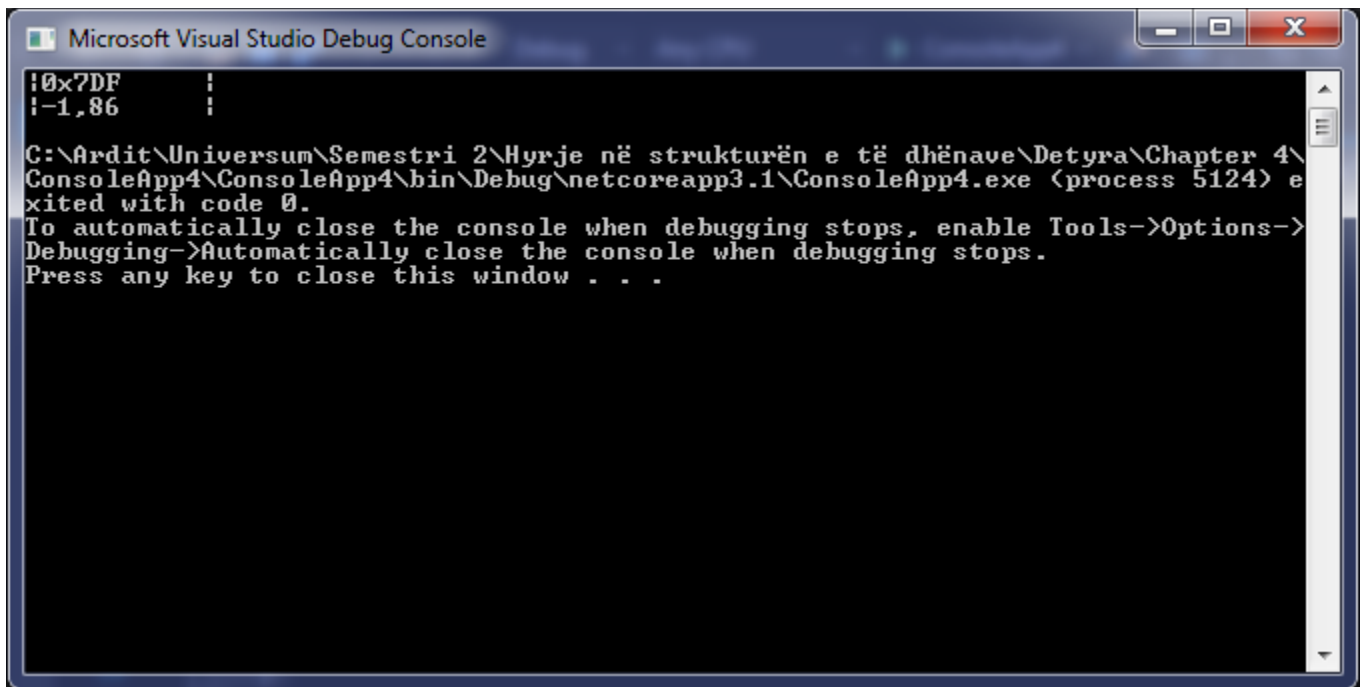
```
Microsoft Visual Studio Debug Console  
Enter company name: Bella  
Enter company address: Prishtina  
Enter company phone number: 045 555 555  
Enter company fax: 045 555 555  
Enter company website: www.example.com  
Enter company manager: Ardit  
Enter manager first name: Ardit  
Enter manager last name: Krasniqi  
Enter manager phone: 045 555 555  
Firm: Name - Bella, Address - Prishtina, Number - 045 555 555, Fax - 045 555 555  
Website - www.example.com, Manager - Ardit  
Manager: Name - Ardit Krasniqi, Phone - 045 555 555  
  
C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\  
ConsoleApp3\ConsoleApp3\bin\Debug\netcoreapp3.1\ConsoleApp3.exe (process 8484) e  
xited 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 . . .
```

4. Write a program that prints three numbers in three virtual columns on the console. Each column should have a width of 10 characters and the numbers should be left aligned. The first number should be an integer in hexadecimal; the second should be fractional positive; and the third - a negative fraction. The last two numbers have to be rounded to the second decimal place.

```
using System;
```

```
namespace ConsoleApp4
```

```
{  
    class Program  
    {  
        static void Main(string[] args)  
        {  
            int hexNum = 2015;  
            Console.WriteLine("|0x{0,-8:X}|", hexNum);  
            double fractNum = -1.856;  
            Console.WriteLine("|{0,-10:f2}|", fractNum);  
        }  
    }  
}
```



The screenshot shows the Microsoft Visual Studio Debug Console window. The output of the program is displayed as follows:

```
|0x7DF      |  
|-1,86      |
```

Below the output, the console shows the following text:

```
C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\  
ConsoleApp4\ConsoleApp4\bin\Debug\netcoreapp3.1\ConsoleApp4.exe (process 5124) e  
xited 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 . . .
```

5. Write a program that reads from the console two integer numbers (int) and prints how many numbers between them exist, such that the remainder of their division by 5 is 0. Example: in the range (14, 25) there are 3 such numbers: 15, 20 and 25.

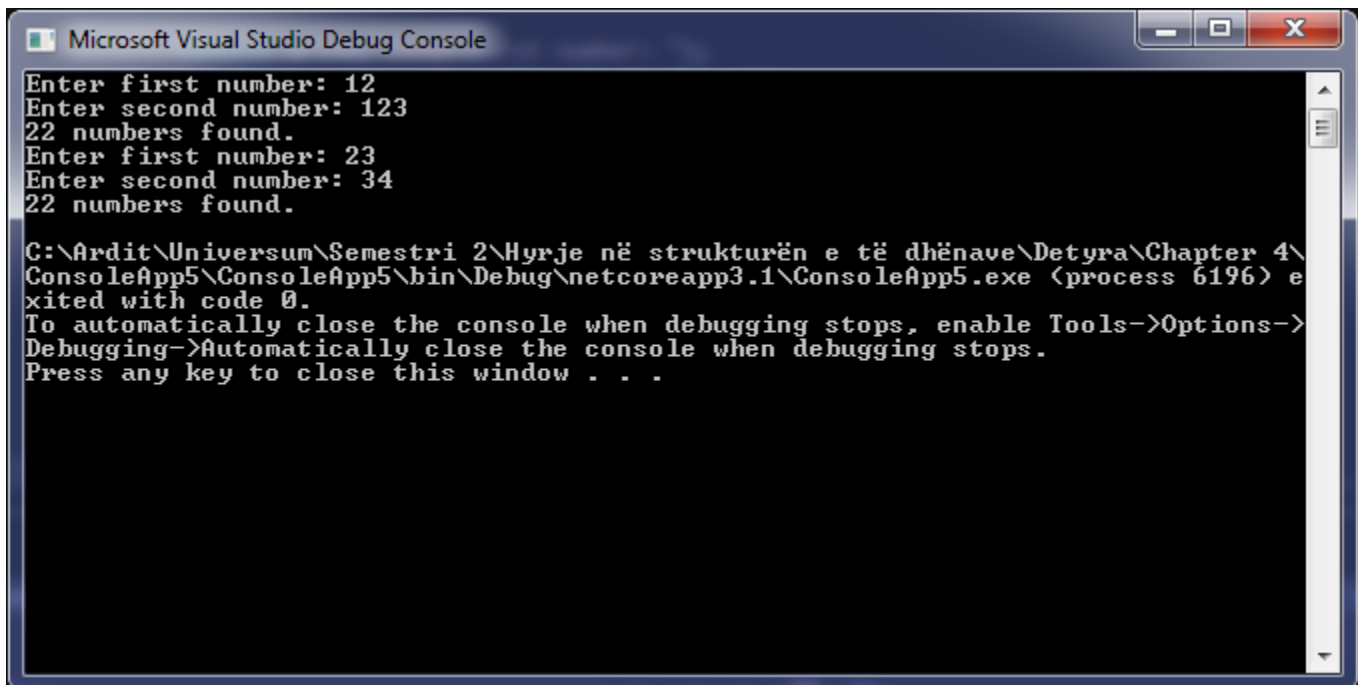
```
using System;

namespace ConsoleApp5
{
    class Program
    {
        static void Main(string[] args)
        {
            int counter = 0;

            Console.Write("Enter first number: ");
            int a = Int32.Parse(Console.ReadLine());
            Console.Write("Enter second number: ");
            int b = Int32.Parse(Console.ReadLine());

            for (int i = a; i <= b; i++)
            {
                if (i % 5 == 0) counter++;
            }

            Console.WriteLine("{0} numbers found.", counter);
        }
    }
}
```



```
Microsoft Visual Studio Debug Console

Enter first number: 12
Enter second number: 123
22 numbers found.
Enter first number: 23
Enter second number: 34
22 numbers found.

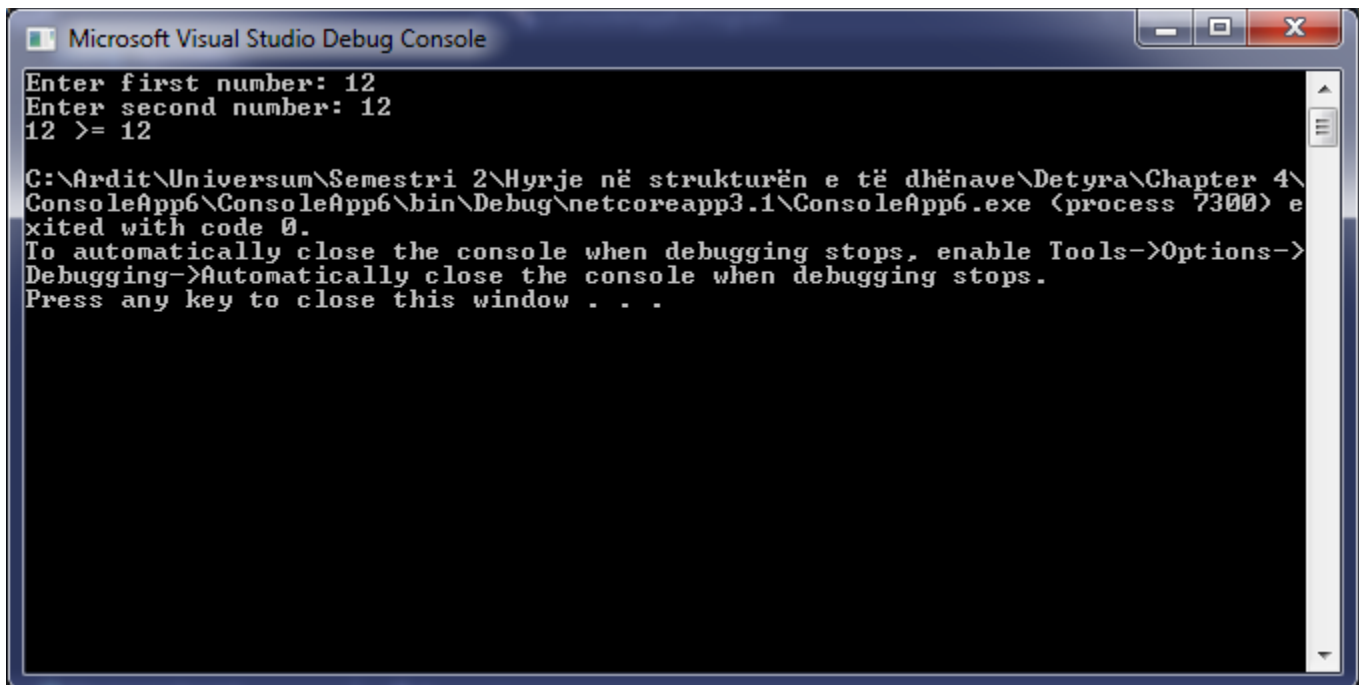
C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\
ConsoleApp5\ConsoleApp5\bin\Debug\netcoreapp3.1\ConsoleApp5.exe (process 6196) e
xited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->
Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

6. Write a program that reads two numbers from the console and prints the greater of them. Solve the problem without using conditional statements.

```
using System;

namespace ConsoleApp6
{
    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.WriteLine("{0} >= {1}", Math.Max(a, b), Math.Min(a, b));
        }
    }
}
```



The screenshot shows the Microsoft Visual Studio Debug Console window. The title bar reads "Microsoft Visual Studio Debug Console". The console output is as follows:

```
Enter first number: 12
Enter second number: 12
12 >= 12

C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\
ConsoleApp6\ConsoleApp6\bin\Debug\netcoreapp3.1\ConsoleApp6.exe (process 7300) e
xited 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 . . .
```

7. Write a program that reads five integer numbers and prints their sum. If an invalid number is entered the program should prompt the user to enter another number.

```
using System;

namespace ConsoleApp7
{
    class Program
    {
        static void Main(string[] args)
        {
            int a, b, c, d, e;
            bool parseSucceed = false;

            do
            {
                Console.Write("Enter first number: ");
                parseSucceed = Int32.TryParse(Console.ReadLine(), out a);
                Console.WriteLine(parseSucceed);
            } while (!parseSucceed);

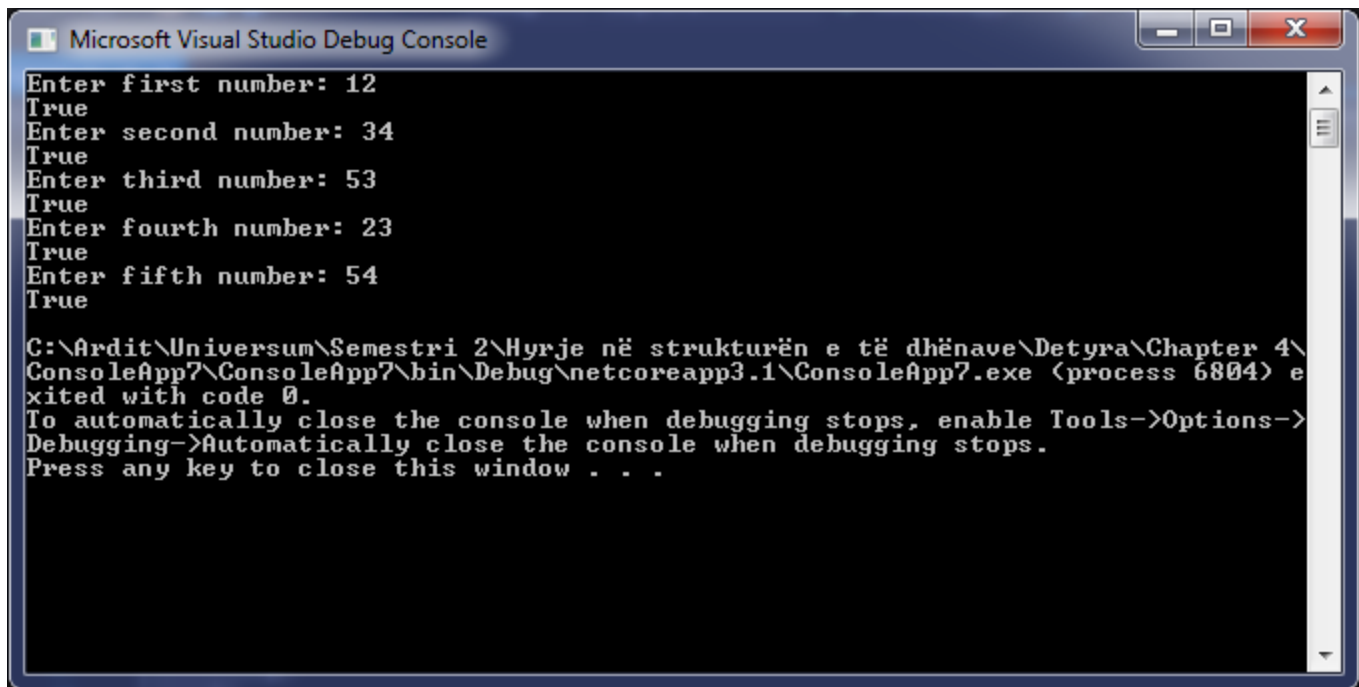
            do
            {
                Console.Write("Enter second number: ");
                parseSucceed = Int32.TryParse(Console.ReadLine(), out b);
                Console.WriteLine(parseSucceed);
            } while (!parseSucceed);

            do
            {
                Console.Write("Enter third number: ");
                parseSucceed = Int32.TryParse(Console.ReadLine(), out c);
                Console.WriteLine(parseSucceed);
            } while (!parseSucceed);

            do
            {
                Console.Write("Enter fourth number: ");
                parseSucceed = Int32.TryParse(Console.ReadLine(), out d);
                Console.WriteLine(parseSucceed);
            } while (!parseSucceed);

            do
            {
                Console.Write("Enter fifth number: ");
                parseSucceed = Int32.TryParse(Console.ReadLine(), out e);
                Console.WriteLine(parseSucceed);
            } while (!parseSucceed);
        }
    }
}
```





Microsoft Visual Studio Debug Console

```
Enter first number: 12
True
Enter second number: 34
True
Enter third number: 53
True
Enter fourth number: 23
True
Enter fifth number: 54
True

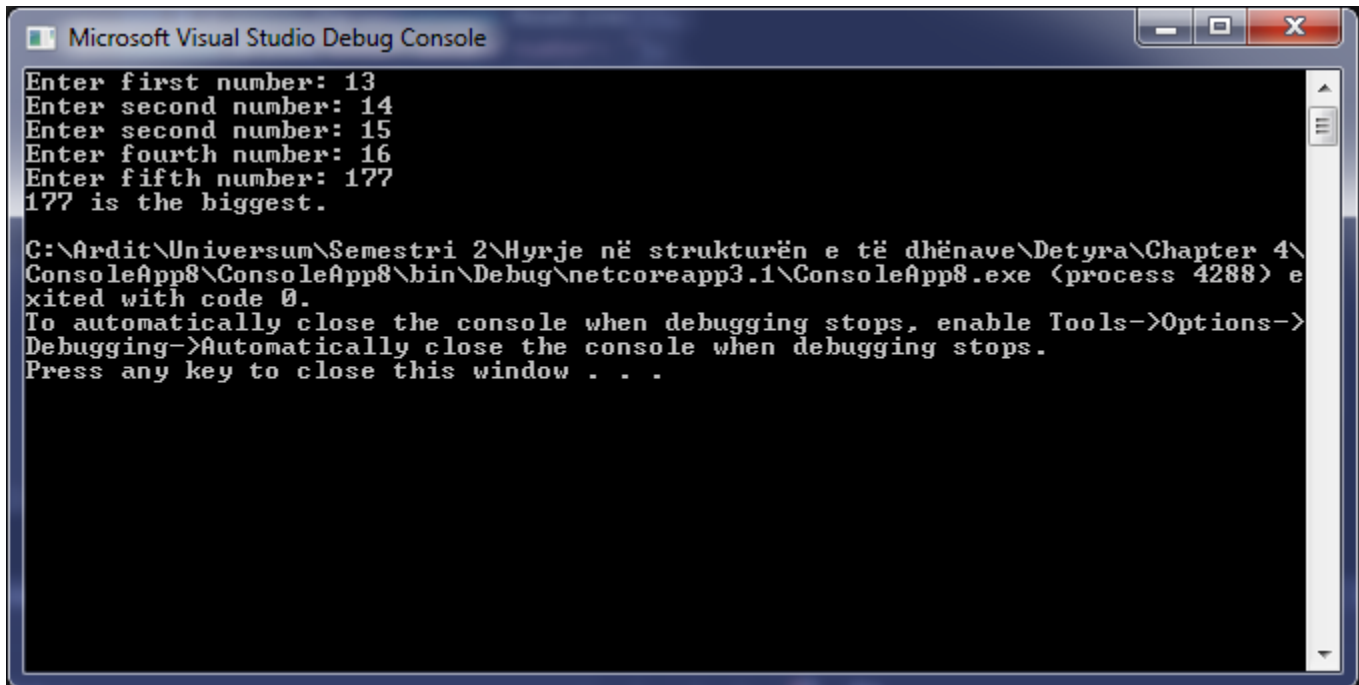
C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\
ConsoleApp7\ConsoleApp7\bin\Debug\netcoreapp3.1\ConsoleApp7.exe (process 6804) e
xited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->
Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

8. Write a program that reads five numbers from the console and prints the greatest of them.

```
using System;
```

```
namespace ConsoleApp8
```

```
{  
    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 second number: ");  
            int c = Int32.Parse(Console.ReadLine());  
            Console.Write("Enter fourth number: ");  
            int d = Int32.Parse(Console.ReadLine());  
            Console.Write("Enter fifth number: ");  
            int e = Int32.Parse(Console.ReadLine());  
  
            if (a > b && a > c && a > d && a > e) Console.WriteLine("{0} is the biggest.", a);  
            else if (b > a && b > c && b > d && b > e) Console.WriteLine("{0} is the biggest.", b);  
            else if (c > a && c > b && c > d && c > e) Console.WriteLine("{0} is the biggest.", c);  
            else if (d > a && d > b && d > c && d > e) Console.WriteLine("{0} is the biggest.", d);  
            else if (e > a && e > b && e > c && e > d) Console.WriteLine("{0} is the biggest.", e);  
            else Console.WriteLine("There isn't a biggest number.");  
        }  
    }  
}
```



```
Microsoft Visual Studio Debug Console  
Enter first number: 13  
Enter second number: 14  
Enter second number: 15  
Enter fourth number: 16  
Enter fifth number: 177  
177 is the biggest.  
  
C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\  
ConsoleApp8\ConsoleApp8\bin\Debug\netcoreapp3.1\ConsoleApp8.exe (process 4288) e  
xited 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 . . .
```

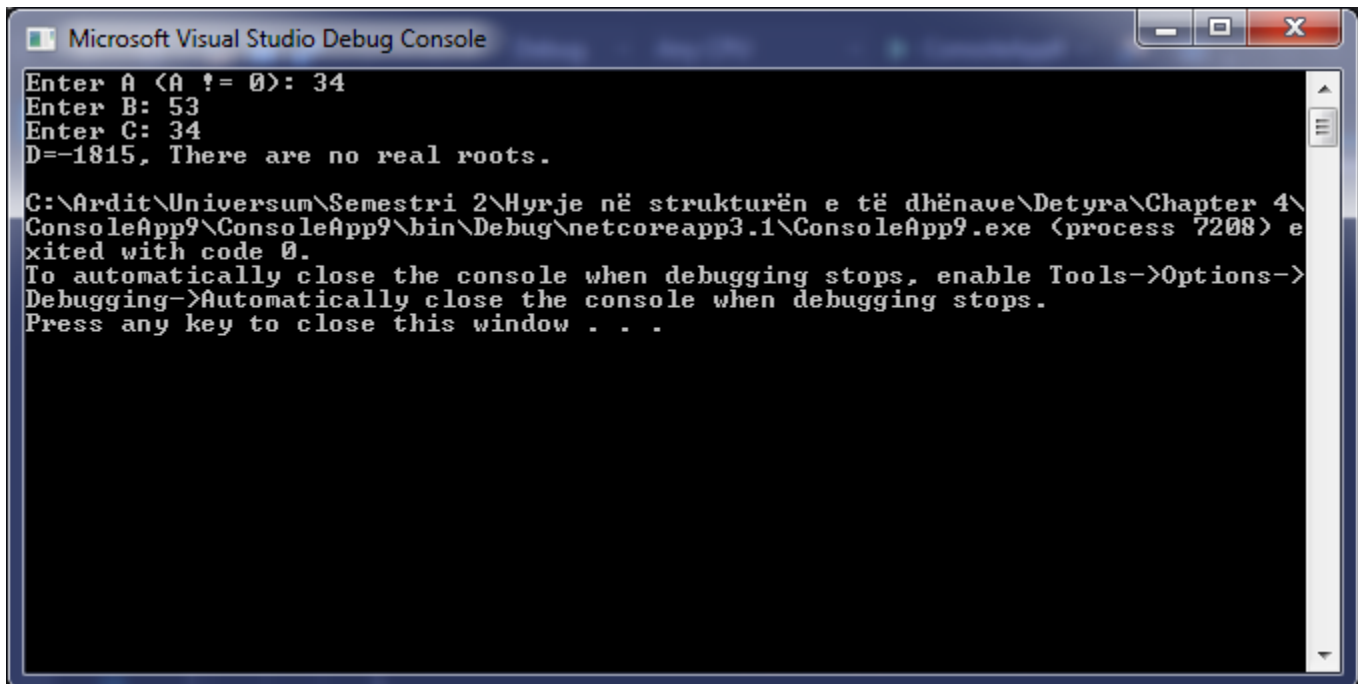
9. Write a program that reads an integer number  $n$  from the console. After that reads  $n$  numbers from the console and prints their sum.

```
using System;

namespace ConsoleApp9
{
    class Program
    {
        static void Main(string[] args)
        {
            double d, x1, x2;
            Console.Write("Enter A (A != 0): ");
            double a = Int32.Parse(Console.ReadLine());
            Console.Write("Enter B: ");
            double b = Int32.Parse(Console.ReadLine());
            Console.Write("Enter C: ");
            double c = Int32.Parse(Console.ReadLine());

            d = b * b - 4 * a * c;

            if (d < 0) Console.WriteLine("D={0}, There are no real roots.", d);
            else if (d == 0)
            {
                x1 = (-b / (2 * a));
                Console.WriteLine("X={0}", x1);
            }
            else
            {
                x1 = (-b + Math.Sqrt(d)) / (2 * a);
                x2 = (-b - Math.Sqrt(d)) / (2 * a);
                Console.WriteLine("X1={0}, X2={1}", x1, x2);
            }
        }
    }
}
```



```
Microsoft Visual Studio Debug Console

Enter A (A != 0): 34
Enter B: 53
Enter C: 34
D=-1815, There are no real roots.

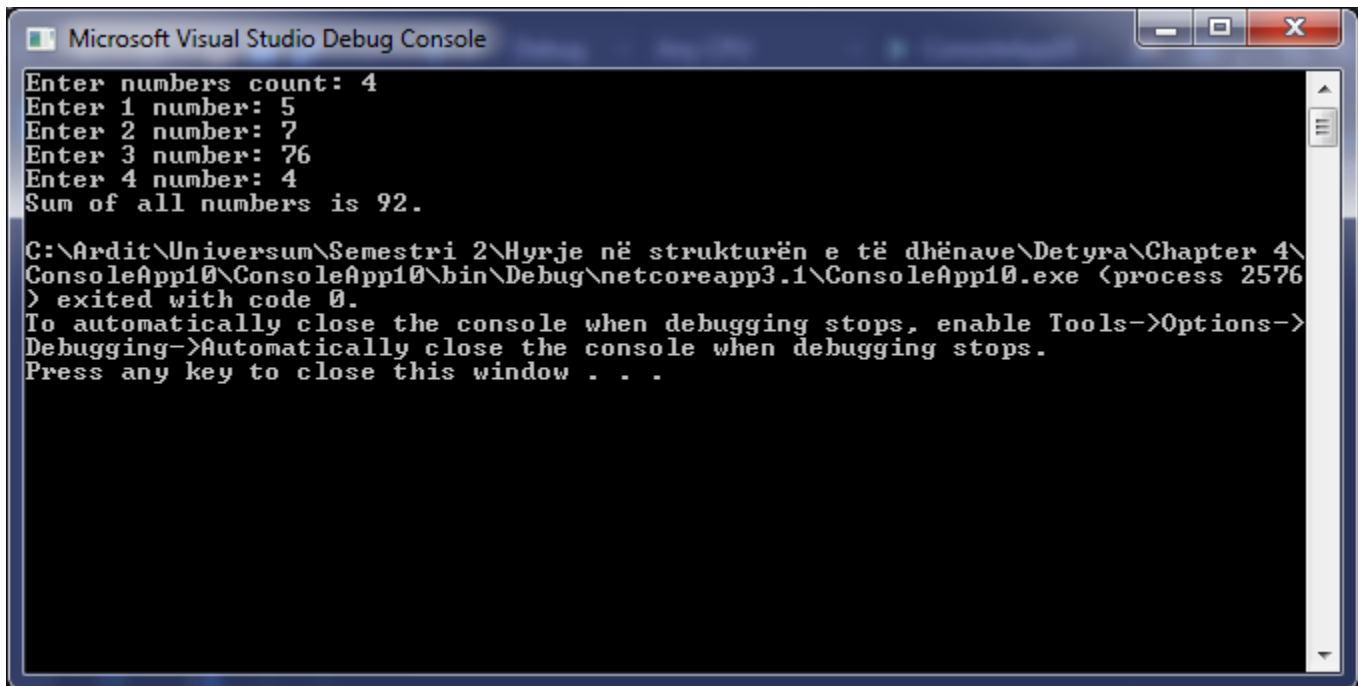
C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\
ConsoleApp9\ConsoleApp9\bin\Debug\netcoreapp3.1\ConsoleApp9.exe (process 7208) e
xited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->
Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

10. Write a program that reads an integer number  $n$  from the console and prints all numbers in the range  $[1..n]$ , each on a separate line.

```
using System;
```

```
namespace ConsoleApp10
```

```
{  
    class Program  
    {  
        static void Main(string[] args)  
        {  
            int sum = 0;  
  
            Console.Write("Enter numbers count: ");  
            int length = Int32.Parse(Console.ReadLine());  
  
            for (int i = 0; i < length; i++)  
            {  
                Console.Write("Enter {0} number: ", i + 1);  
                sum += Int32.Parse(Console.ReadLine());  
            }  
  
            Console.WriteLine("Sum of all numbers is {0}.", sum);  
        }  
    }  
}
```



The screenshot shows the Microsoft Visual Studio Debug Console window. The output of the program is as follows:

```
Enter numbers count: 4  
Enter 1 number: 5  
Enter 2 number: 7  
Enter 3 number: 76  
Enter 4 number: 4  
Sum of all numbers is 92.
```

Below the program output, the console displays the file path and process information:

```
C:\Ardit\Universum\Semestri 2\Hyrje në strukturën e të dhënave\Detyra\Chapter 4\  
ConsoleApp10\ConsoleApp10\bin\Debug\netcoreapp3.1\ConsoleApp10.exe (process 2576  
) exited with code 0.
```

Finally, it provides instructions for closing the console window:

```
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 . . .
```

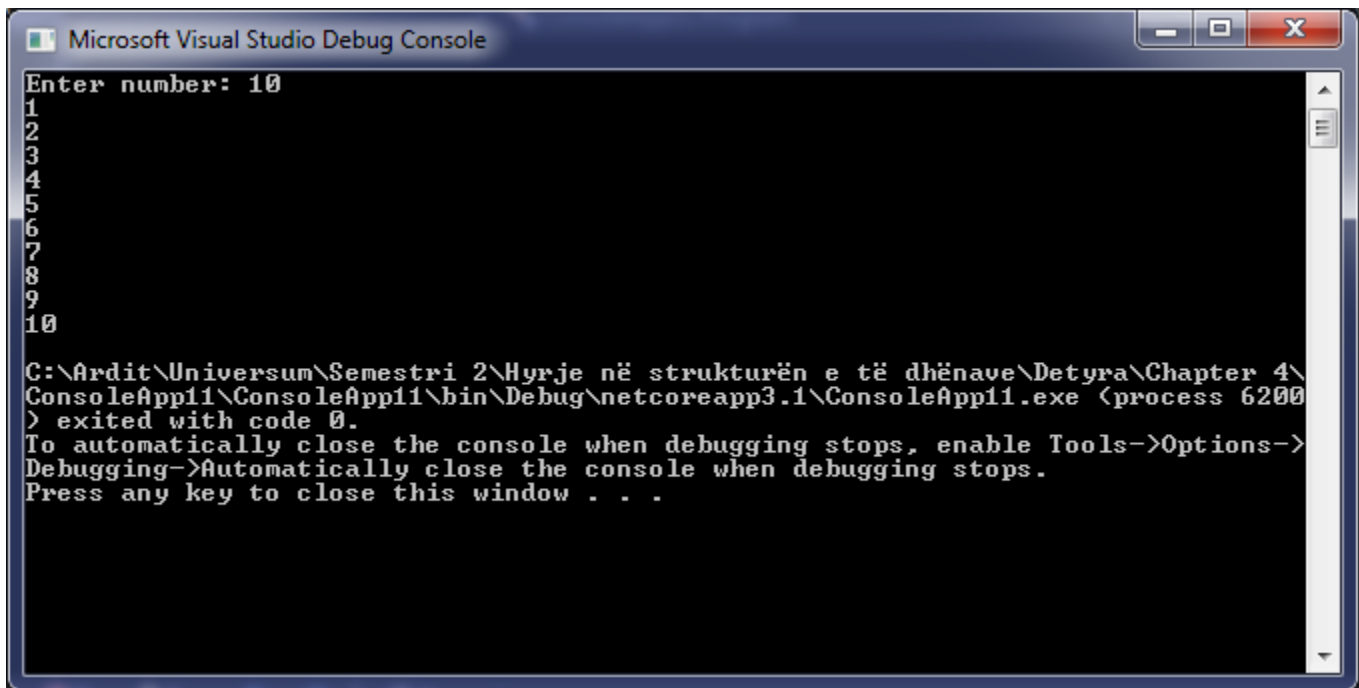
11. Write a program that prints on the console the first 100 numbers in the Fibonacci sequence: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, ...

```
using System;

namespace ConsoleApp11
{
    class Program
    {
        static void Main(string[] args)
        {
            int sum = 0;

            Console.Write("Enter number: ");
            int length = Int32.Parse(Console.ReadLine());

            for (int i = 1; i <= length; i++)
            {
                Console.WriteLine(i);
            }
        }
    }
}
```



12. Write a program that calculates the sum (with precision of 0.001) of the following sequence:  $1 + 1/2 - 1/3 + 1/4 - 1/5 + \dots$

```
using System;

namespace ConsoleApp12
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter last number: ");
            int length = Int32.Parse(Console.ReadLine());
            double sum = 1.0;

            for (int i = 2; i <= length; i++)
            {
                sum += (1.0 / i);
            }
            Console.WriteLine("{0:F3}", sum);
        }
    }
}
```

