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Chapter 2. Primitive Types and Variables

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.

```
using System;

namespace exercise 2.1

{

  class Program

   {

      static void Main(string[] args)

      {

         ushort first = 52130;

         sbyte second = -115;

         int third = 4825932;

         byte fourth = 97;

         short fivth = -10000;

         ushort sixth = 20000;

         byte seventh = 224;

         ushort eighth = 970;

         int ninth = 700000;

         byte tenth = 112;

         sbyte eleventh = -44;

         int twelfth = -1000000;

         short thirteenth = 1990;

         ulong fourteenth = 123456789123456789;

      } } }
```

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; 3456.09112487595654215125668346 7?

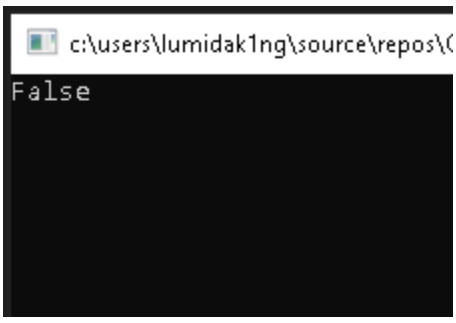
Decimal : 3456.09112487595654215125668346 7

Float : 34.567839023, 8923.1234857

Double : 12.345, 5.01, 5

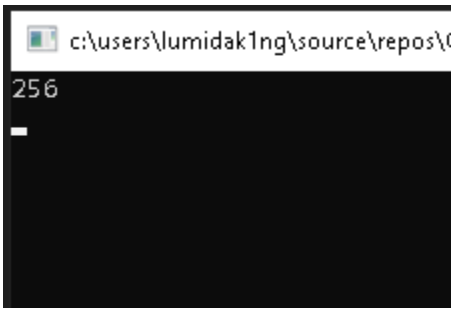
3. Write a program, which compares correctly two real numbers with accuracy at least 0.000001.

```
using System;


namespace exercise 2.3
{
   class Program
   {
      static void Main(string[] args)
      {
         bool krahasimi = (0.000003<0.000002);
         Console.Write(krahasimi);
         Console.ReadKey();
      }
   }
}
```



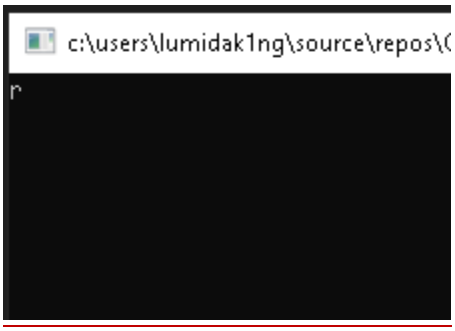
4. Initialize a variable of type int with a value of 256 in hexadecimal format (256 is 100 in a numeral system with base 16).

```
using System;


namespace exercise 2.4
{
   class Program
   {
      static void Main(string[] args)
      {
         int number = 0x100;
         Console.WriteLine(number);
         Console.ReadKey();
      }
   }
}
```



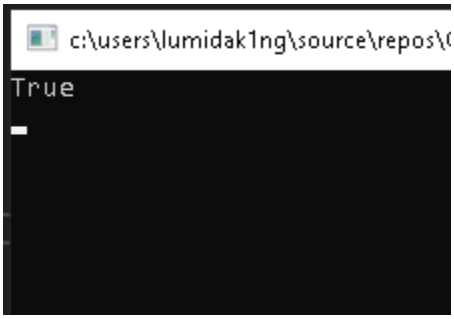
5. Declare a variable of type char and assign as a value the character, which has Unicode code, 72 (use the Windows calculator in order to find hexadecimal representation of 72).

```
using System;


namespace exercise 2.5
{
   class Program
   {
      static void Main(string[] args)
      {
         char character = '\u0072';
         Console.WriteLine(character);
         Console.ReadKey();
      }
   }
}
```



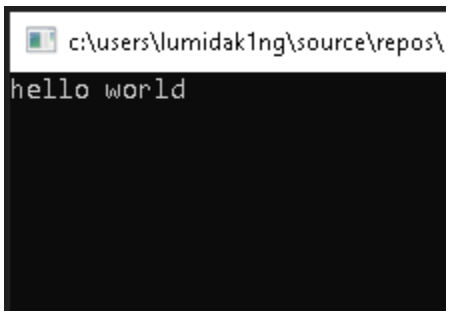
6. Declare a variable is Male of type bool and assign a value to it depending on your gender.

```
using System;

namespace exercise 2.6
{
   class Program
   {
      static void Main(string[] args)
      {
         bool male = (1<2);
         Console.WriteLine(male);
         Console.ReadKey();
      }
   }
}
```



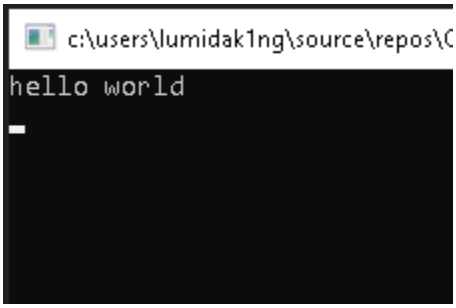
7. Declare two variables of type string with values "Hello" and "World". Declare a variable of type object. Assign to this variable the value obtained of concatenation of the two string variables (add space if necessary). Print the variable of type object.

```
using System;


namespace exercise 2.7
{
   class Program
   {
      static void Main(string[] args)
      {
         string hello = "hello";
         string world = "world";
         object helloWorld = hello + " " + world;
         Console.WriteLine(helloWorld);
         Console.ReadKey();
      }
   }
}
```



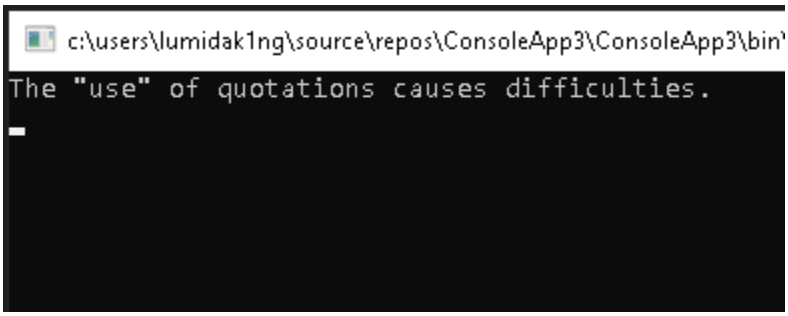
8. Declare two variables of type string and assign them values "Hello" and "World". Declare a variable of type object and assign to it the value obtained of concatenation of the two variables of type string (do not miss the space in the middle). Declare a third variable of type string and initialize it with the value of the variable of type object (you should use type casting).

```
using System;


namespace exercise 2.8
{
   class Program
   {
      static void Main(string[] args)
      {
         string hello = "hello";
         string world = "world";
         object helloWorld = hello + " " + world;
         string HW = (string)helloWorld;
         Console.WriteLine(HW);
         Console.ReadKey();
      }
   }
}
```



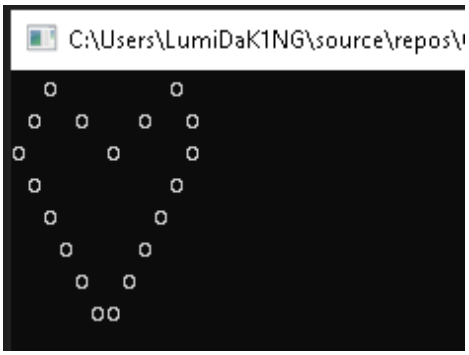
9. Declare two variables of type string and assign them a value “The "use" of quotations causes difficulties.” (without the outer quotes). In one of the variables use quoted string and in the other do not use it.

```
using System;


namespace exercise 2.9
{
   class Program
   {
      static void Main(string[] args)
      {
         string str = "The \"use\" of quotations causes difficulties.";
         Console.WriteLine(str);
         Console.ReadKey();
      }
   }
}
```



10. Write a program to print a figure in the shape of a heart by the sign "o".

```
using System;


namespace exercise 2.10
{
   class Program
   {
      static void Main(string[] args)
      {
         Console.WriteLine("  o      o  ");
         Console.WriteLine(" o  o   o  o");
         Console.WriteLine("o     o    o");
         Console.WriteLine(" o       o");
         Console.WriteLine("  o     o");
         Console.WriteLine("   o    o");
         Console.WriteLine("    o  o");
         Console.WriteLine("     oo");
         Console.ReadKey();
      }
   }
}
```



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

```
using System;


namespace exercise 2.11
{
   class Program
   {
      static void Main(string[] args)
      {
         Console.WriteLine("    c    ");
         Console.WriteLine("   c c   ");
         Console.WriteLine("  c   c" );
         Console.WriteLine(" c     c" );
         Console.WriteLine("ccccccccc");
         Console.ReadKey();
      }
   }
}
```

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.

```
using System;


namespace exercise 2.12
{
   class Program
   {
      static void Main(string[] args)
      {
         int ID = 27559169;
         string firstName = "Filan";
         string lastName = "Fisteku";
         byte age = 35;
         char gender = 'm';
      }
   }
}
```

13. Declare two variables of type int. Assign to them values 5 and 10 respectively. Exchange (swap) their values and print them.

```
using System;


namespace exercise 2.13
{
   class Program
   {
      static void Main(string[] args)
      {
         int a = 5;
         int b = 10;
         int a2 = a;
         a = b;
         b = a2;
         Console.WriteLine("a : {0}   b : {1}", a, b);
        Console.ReadKey();
      }
   }
}
```