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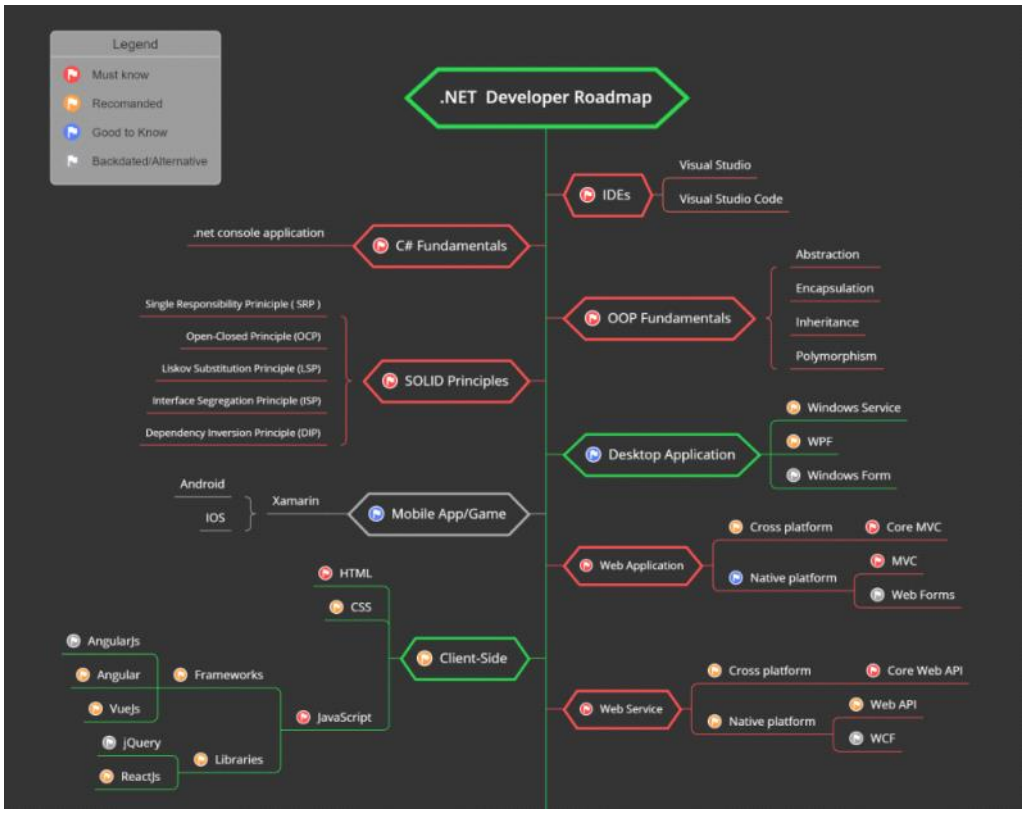
https://raw.githubusercontent.com/saifaustcse/dotnet-developer-roadmap/master/images/donet-developer-roadmap-v2.png



What is a Language?

A language is nothing but a set of instructions.

If we want to communicate with another person, we are passing instructions using a particular language.

But while using a language, we need to follow some rules or you can say a set of instructions.

What is Computer Language?

A computer language is also a set of instructions

In other words, we can say a set of programs, that the computer can understand.

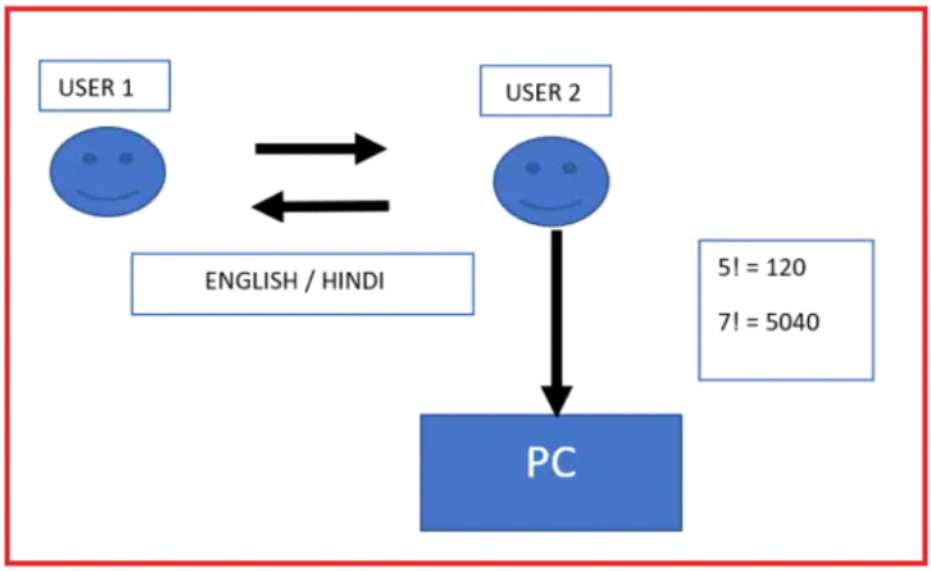
Computer language is used to communicate with a computer.

Why do we need Computer language?

Complex operation can be performed very easily by a computer using programs. But the computer only understands the binary language i.e. 0 and 1.

That's why there is a need for a programming language in order to communicate with computers.

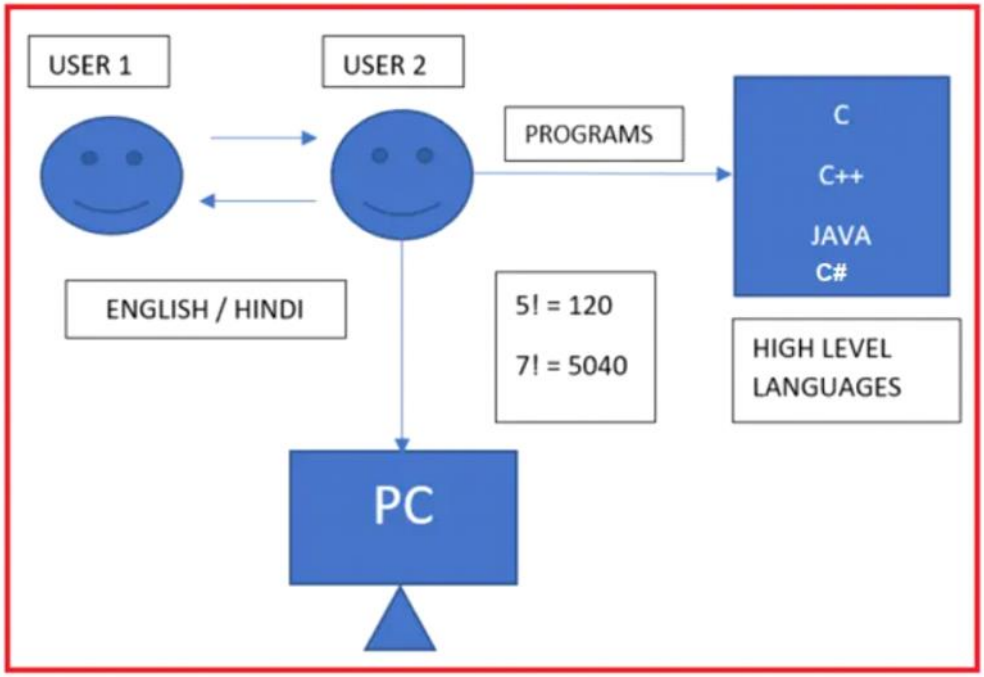
Factorial of 5 = 1*2*3*4*5 = 120



If the person wants to communicate with the computer, the person needs to pass instructions in the machine code or binary code only because a computer can understand only **machine code or binary code.**

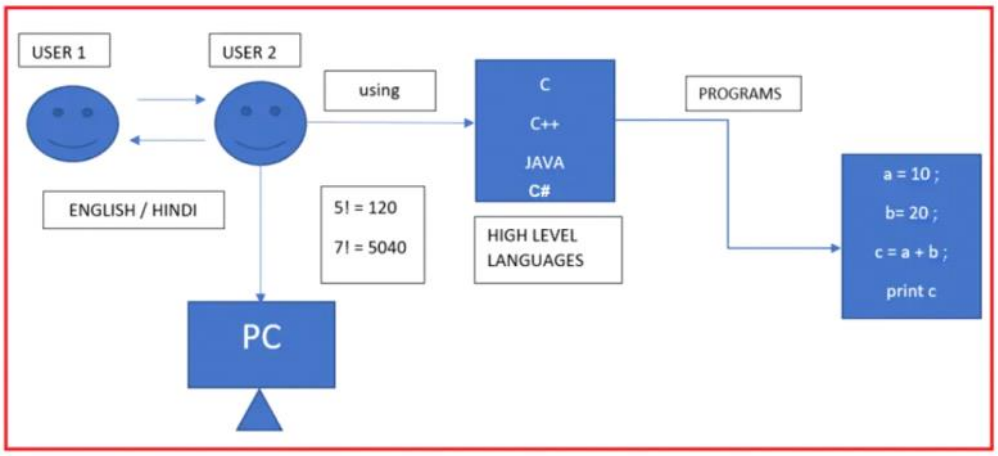
So that's why first we have to learn one **programming language** properly.

There are many programming languages like C, C++,C#, Java. And all these are **high-level** programming languages.



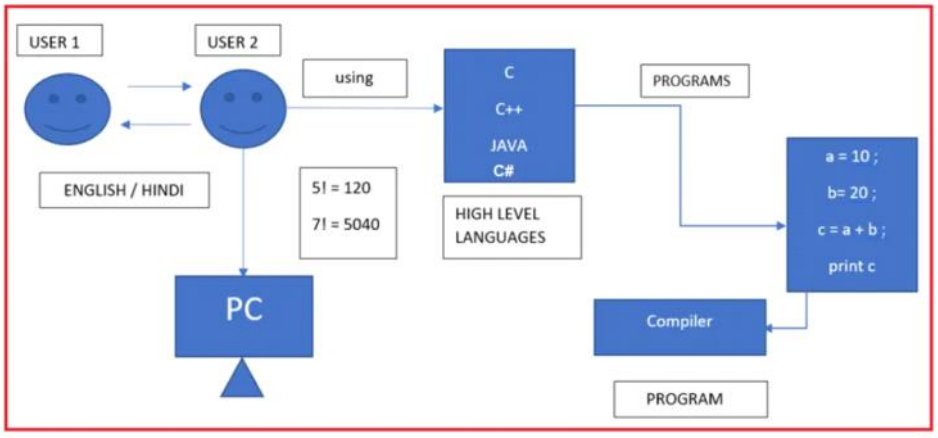
So, for communicating with Computers, we write programs using any programming language. If you want to communicate with the computer using the C# language, first you should learn the C# language perfectly.

After learning the language, you can write programs, program means a set of instructions.



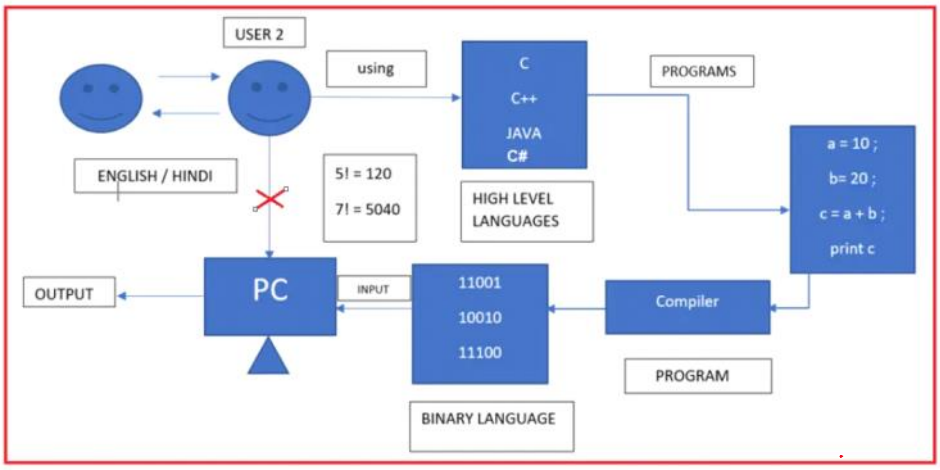
Programs get converted by the Compiler and generate machine code.

The compiler converts all these instructions into binary language or machine code.



Now the machine code is ready. So, once the machine code is ready you can pass it as input to the computer.

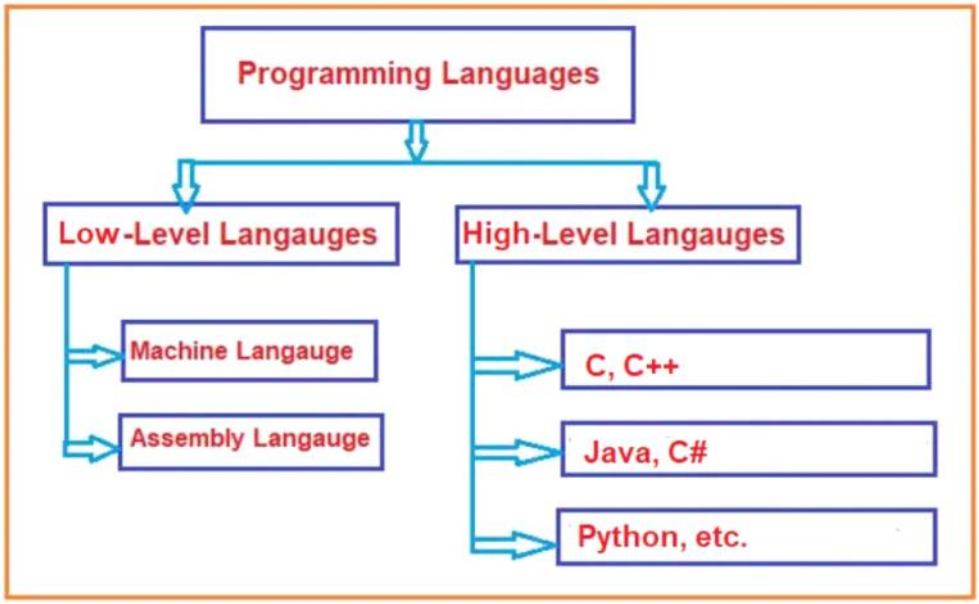
The computer will produce the output.



Types of Computer Languages:

A Programming Language or Computer Language is a formal language, which comprises a set of instructions that is used to communicate with the computer. Programming Language is classified into two types:

- **High-Level Programming Language**
- **Low-level Programming Language**



What is a Low-level Programming Language?

Low-Level Programming Languages are the languages that can be easily understandable by the system. These are system-dependent languages. In these two languages are there i.e.

- **Machine Language**
- **Assembly Language**

What is a high-level programming language?

The High-Level Programming Languages are syntactically similar to English and easy to understand. High-Level Programming Languages are user-dependent languages.

A High-Level Programming Language is a combination of alphabets, digits, and symbols. By using a high-level programming language, we are developing user interface applications.

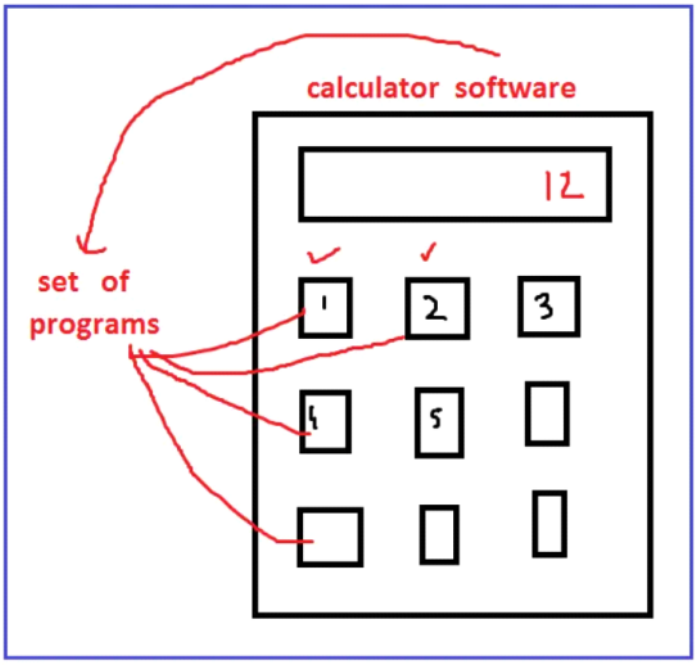
Examples: C, C++, JAVA, C#, Swift etc….

What is Software?

Software is a collection of programs that uses the resources of the Hardware

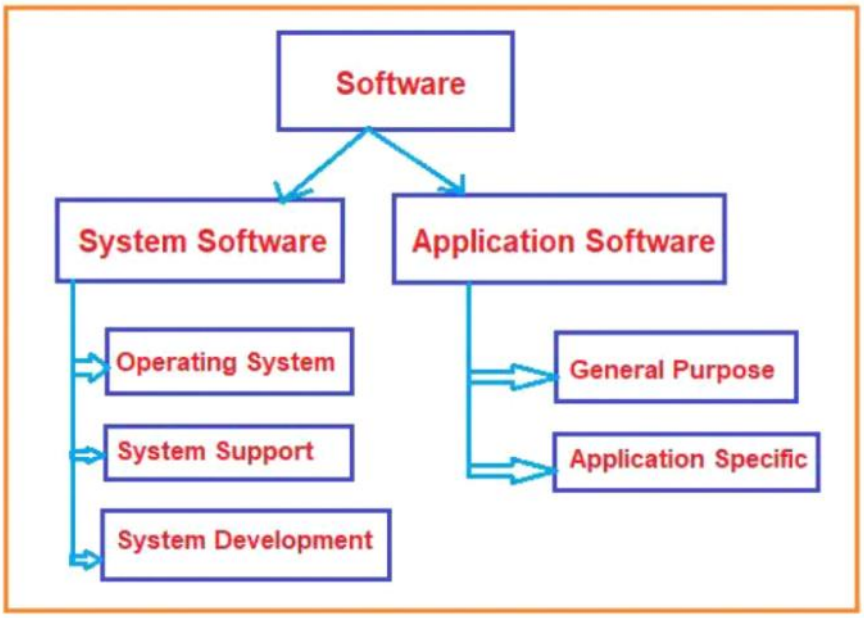
components. A Program is a set of instructions that are designed for a particular task. The set of programs is called software.

Let us understand this with an example i.e. Calculator. For each button, there is some program written inside it. That means a calculator is a collection of programs. And we can also say that a Calculator is a software. That means the software is a collection of programs.



Types of Software:

Software is classified into two types, i.e. System Software and Application Software. For a better understanding please have a look at the below image.



System Software:

System Software is software designed for a general purpose and does not have any limitations. It is basically designed to provide a platform for other software

Systems.

So, the Software does the functionality for the hardware devices like printers, mobile, processors, etc.

System Software is classified into three types:

- **Operating System: DOS, WINDOWS, LINUX, UNIX**
- **System Support: Compiler, Interpreter, Assembler**
- **System Development: Linker, Loader, Editor**

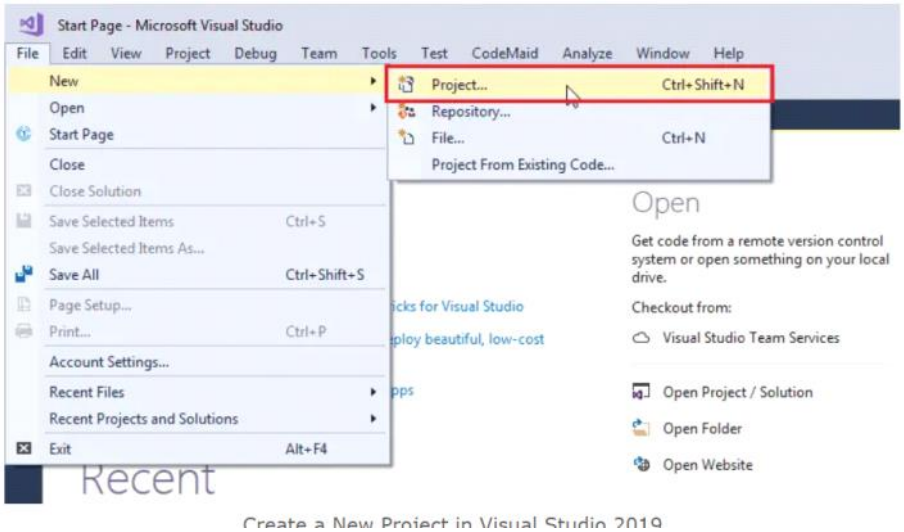
Application Software:

Application Software is a program or group of programs designed for end-users i.e. designed for a specific task. Application Software does the functionality for business-oriented applications.

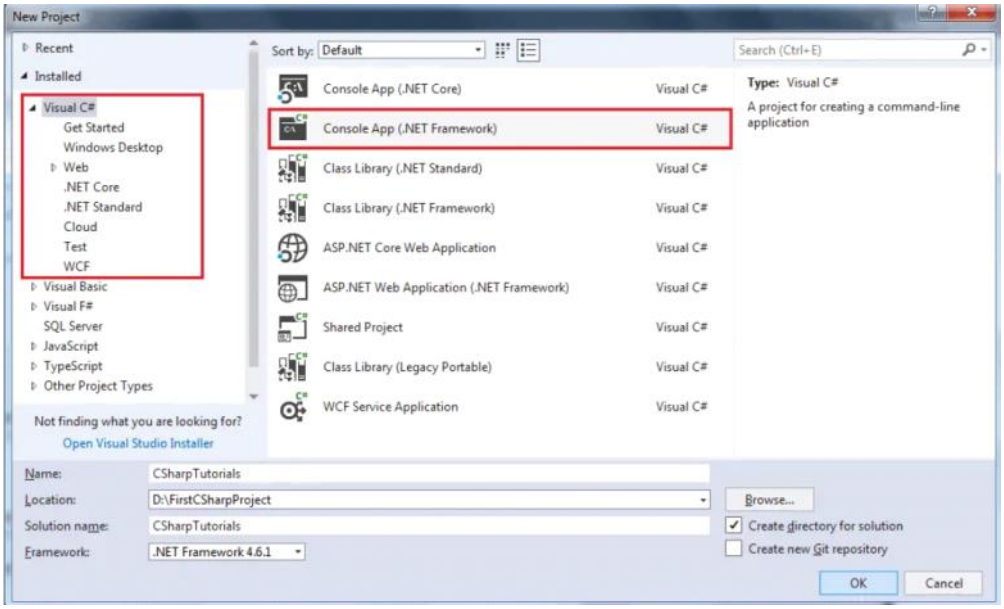
Application Software is classified into two types:

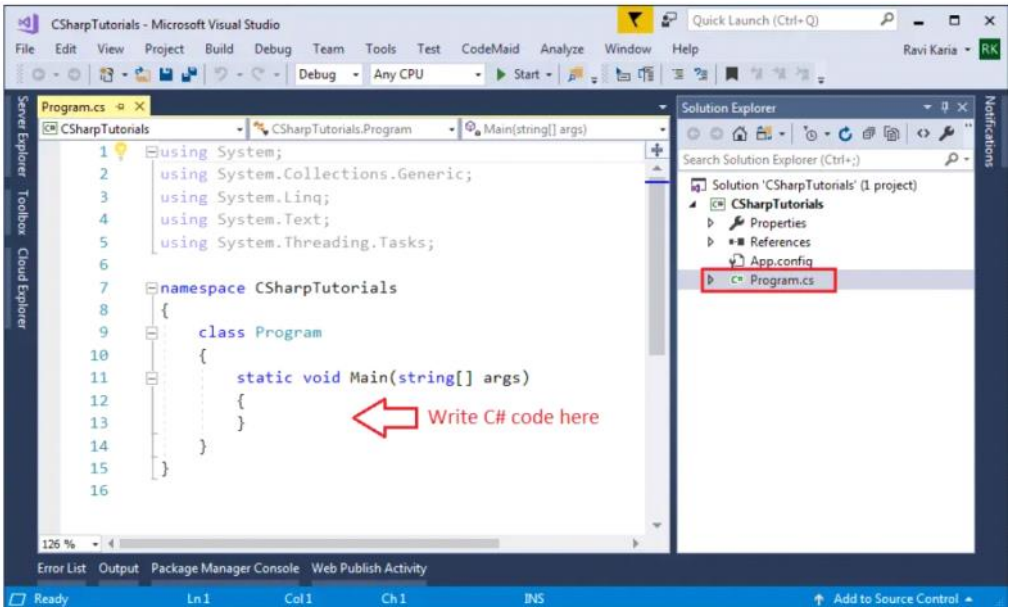
- **Application-Specific: MS OFFICE, Oracle**
- **General Purpose Software: Tally**

First C# Program



Create a New Project in Visual Studio 2019





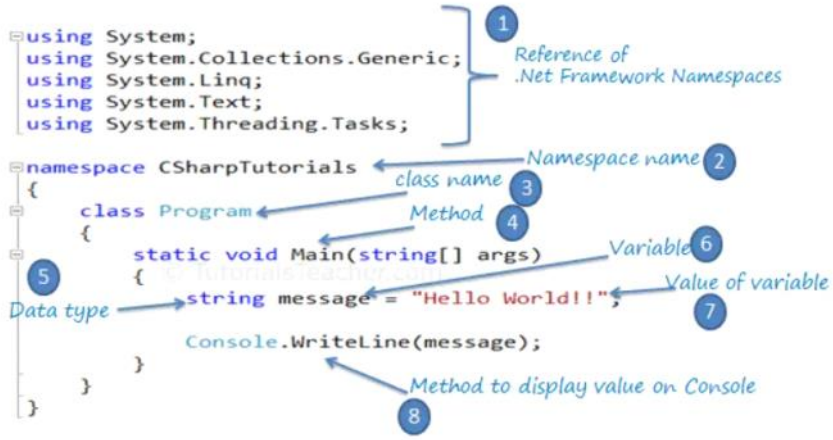
Every console application starts from the **Main()** method of the Program class.
The following example displays **"Hello World!!"** on the console.

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

namespace CSharpTutorials
{
    class Program
    {
        static void Main(string[] args)
        {
            string message = "Hello World!!";

            Console.WriteLine(message);
        }
    }
}
```

The following image illustrates the important parts of the above example.



C# Code Structure

Let's understand the above C# structure.

1. Every .NET application takes the reference of the necessary .NET framework namespaces that it is planning to use with the `using` keyword, e.g., `using System.Text`.
2. Declare the namespace for the current class using the `namespace` keyword, e.g., `namespace CSharpTutorials.FirstProgram`
3. We then declared a class using the `class` keyword: `class Program`
4. The `Main()` is a method of `Program` class is the entry point of the console application.
5. `String` is a data type.
6. A `message` is a variable that holds the value of a specified data type.
7. `"Hello World!!"` is the value of the message variable.
8. The `Console.WriteLine()` is a static method, which is used to display a text on the console.

Compile and Run C# Program

To see the output of the above C# program, we have to compile it and run it by pressing Ctrl + F5 or clicking the Run button or by clicking the "Debug" menu and clicking "Start Without Debugging". You will see the following output in the console:

Output:

```
Hello World!!
```

So this is the basic code items that you will probably use in every C# code.