Hello World in C#

The Hello World! program is the most basic and first program when you dive into a new programming language. This simply prints the Hello World! on the output screen. In [C#](), a basic program consists of the following:

- **A Namespace Declaration**

- **Class Declaration & Definition**

- **Class Members(like variables, methods etc.)**

- **Main Method**

- **Statements or Expressions**

Example:

```
// C# program to print Hello World!
using System;


// namespace declaration
namespace HelloWorldApp {


    // Class declaration
    class Geeks {
```

```csharp
        // Main Method
        static void Main(string[] args) {

            // statement
            // printing Hello World!
            Console.WriteLine("Hello World!");

            // To prevents the screen from
            // running and closing quickly
            Console.ReadKey();
        }
    }
}
```

Output:

Hello World!

Explanation:

- **using System:** System is a [namespace](#) which contains the commonly used types. It is specified with a **using** System directive.

- **namespace HelloWorldApp:** Here namespace is the keyword which is used to define the namespace. *HelloWorldApp* is the user-defined name given to namespace. For more details, you can refer to [C# | Namespaces](#)

- **class Geeks:** Here *class* is the keyword which is used for the declaration of classes. *Geeks* is the user-defined name of the class.

- **static void Main(string[] args):** Here *static* keyword tells us that this method is accessible without instantiating the class. *void* keyword tells that this method will not return anything. *Main()* method is the entry point of our application. In our program, *Main()* method specifies its behavior with the statement *Console.WriteLine("Hello World!");*.

- **Console.WriteLine():** Here *WriteLine()* is a method of the Console class defined in the System namespace.

- **Console.ReadKey():** This is for the VS.NET Users. This makes the program wait for a key press and prevents the screen from running and closing quickly.

How to run a C# Program?

Generally, There are **3 ways** to compile and execute a C# program as follows:

- **To use an online C# compiler:** You can use various online [IDE]. which can be used to run C# programs without installing.

- **Using Visual Studio IDE:** Microsoft has provided an IDE(Integrated Development Environment) tool named Visual Studio to develop applications using different programming languages such as C#, VB(Visual Basic) etc. To install and use Visual Studio for the commercial purpose it must buy a license from the Microsoft. For learning (non-commercial) purpose, Microsoft provided a free Visual Studio Community Version. To learn how to run a program in Visual Studio you can refer to [this].

- **Using Command-Line:** You can also use command-line options to run a C# program. Below steps demonstrate how to run a C# program on Command line in Windows Operating System:

  - First, open a text editor like Notepad or Notepad++.

  - Write the code in the text editor and save the file with **.cs** extension.

  - Open the cmd(Command Prompt) and run the command **csc** to check for the compiler version. It specifies whether you have installed a valid compiler

or not. You can avoid this step if you confirmed that compiler is installed.

```
C:\Users\Anshul Aggarwal>csc
Microsoft (R) Visual C# Compiler version 4.7.3056.0
for C# 5
Copyright (C) Microsoft Corporation. All rights reserved.

This compiler is provided as part of the Microsoft (R) .NET Framework, but only supports language versions up to C#
 5, which is no longer the latest version. For compilers that support newer versions of the C# programming language
, see http://go.microsoft.com/fwlink/?LinkID=533240

warning CS2008: No source files specified
error CS1562: Outputs without source must have the /out option specified
```

- To compile the code type **csc filename.cs** on cmd. If your program has no error then it will create a filename.exe file in the same directory where you have saved your program. Suppose you saved the above program as *hello.cs*. So you will write *csc hello.cs* on cmd. This will create a *hello.exe*.

```
C:\Users\Anshul Aggarwal>csc hello.cs
Microsoft (R) Visual C# Compiler version 4.7.3056.0
for C# 5
Copyright (C) Microsoft Corporation. All rights reserved.

This compiler is provided as part of the Microsoft (R) .NET Framework, but only supports language versions up to C#
 5, which is no longer the latest version. For compilers that support newer versions of the C# programming language
, see http://go.microsoft.com/fwlink/?LinkID=533240
```

- Now you have to ways to execute the *hello.exe*. First, you have to simply type the filename i.e hello on the cmd and it will give the output. Second, you can go to the directory where you saved your program and there you find *filename.exe*. You have to simply double-click that file and it will give the output.

```
C:\Users\Anshul Aggarwal>hello
Hello World
```