

# First Steps with C#

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## Learning Objectives:

- Beginner level understanding with creating literal values and declare variables of basic data types like string, int, and decimal.
- Perform mathematical operations on numeric values
- Observe implicit type conversion between strings and numeric values
- Temporarily convert one data type into another

## Introduction to Visual Studio Code:

- Visual Studio Code is an integrated development environment made by Microsoft for Windows, Linux and macOS.
- Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git.
- Developer: Microsoft
- Initial release: April 29, 2015; 6 years ago

## Set-Up and Installation:

Install the following:

1. .NET Core SDK. The SDK also includes the Runtime.

<https://dotnet.microsoft.com/download>

2. The C# extension from the VS Code Marketplace.

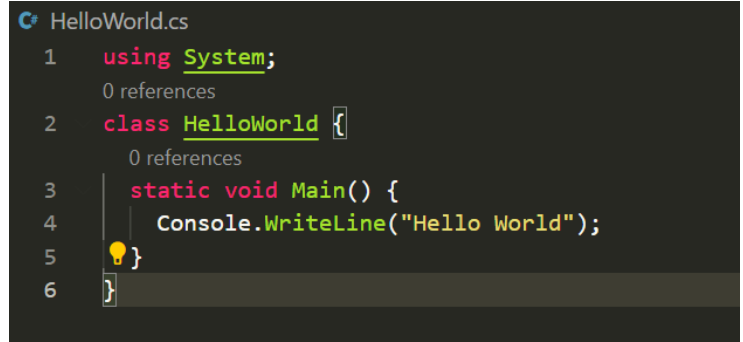
<https://marketplace.visualstudio.com/items?itemName=ms-dotnettools.csharp>

3. The F# extension (Ionide) from the VS Code Marketplace.

<https://marketplace.visualstudio.com/items?itemName=Ionide.Ionide-fsharp>

## What is C# ?

- C# is pronounced as C-Sharp.
- C# was launched by Microsoft Corporation in 2000.
- C# (C-Sharp) is a programming language developed by Microsoft that runs on the .NET Framework.
- C# is used to develop web apps, desktop apps, mobile apps, games and much more.




```

HelloWorld.cs
1  using System;
   0 references
2  class HelloWorld {
   0 references
3      static void Main() {
4          Console.WriteLine("Hello World");
5      }
6  }
  
```

## First C# Program:

- ❖ Syntax to print output.
- ❖ Double quotes because we're printing string.
- ❖ Semicolon indicates the termination of a line of code.

## Datatypes in C#



```

DataTypes.cs > ...
1  using System;
   0 references
2  class HelloWorld
3  {
   0 references
4      static void Main()
5      {
6          int myNum = 5;           // Integer (whole number)
7          double myDoubleNum = 5.99D; // Floating point number
8          char myLetter = 'D';     // Character
9          bool myBool = true;      // Boolean
10         string myText = "Hello"; // String
11     }
12 }
13 }
  
```

## Creating Variables:

- A variable is a data item that may change its value during its lifetime.
- Variable names can contain alphanumeric characters and the underscore character. (# and \$ are not allowed)
- Variable names must begin with an alphabetical letter or an underscore, not a number.
- Variable names must not be a C# keyword.
- Variable names are case-sensitive.

## Printing Variable:

```
C# PrintName.cs > ...
1  using System;
    0 references
2  class HelloWorld {
    0 references
3      static void Main() {
4          string firstname = "Mansi";
5          Console.WriteLine(firstname);
6      }
7  }
8
```

## Operators in C#:

+ is the addition operator

- is the subtraction operator

\* is the multiplication operator

/ is the division operator

```
int sum = 7 + 5;
int difference = 7 - 5;
int product = 7 * 5;
int quotient = 7 / 5;

Console.WriteLine ("Sum: " + sum);
Console.WriteLine ("Difference: " + difference);
Console.WriteLine ("Product: " + product);
Console.WriteLine ("Quotient: " + quotient);
```

## Interesting Facts about C#:

- C# is case-sensitive.
- The extension of C# files is .cs
- The name of the C Sharp language is stimulated by the musical notation. Here sharp, represent the written note which should be made a semitone higher in pitch.
- The syntax of C# language is similar to the C-style family such as Java, C, C++.