

## C# - Environment

In this chapter, we will discuss the tools required for creating C# programming. We have already mentioned that C# is part of .Net framework and is used for writing .Net applications. Therefore, before discussing the available tools for running a C# program, let us understand how C# relates to the .Net framework.

### The .Net Framework

The .Net framework is a revolutionary platform that helps you to write the following types of applications –

- Windows applications
- Web applications
- Web services

The .Net framework applications are multi-platform applications. The framework has been designed in such a way that it can be used from any of the following languages: C#, C++, Visual Basic, Jscript, COBOL, etc. All these languages can access the framework as well as communicate with each other.

The .Net framework consists of an enormous library of codes used by the client languages such as C#. Following are some of the components of the .Net framework –

- Common Language Runtime (CLR)
- The .Net Framework Class Library
- Common Language Specification
- Common Type System
- Metadata and Assemblies
- Windows Forms
- ASP.Net and ASP.Net AJAX
- ADO.Net
- Windows Workflow Foundation (WF)
- Windows Presentation Foundation
- Windows Communication Foundation (WCF)
- LINQ

For the jobs each of these components perform, please see ASP.Net - Introduction , and for details of each component, please consult Microsoft's documentation.

### Integrated Development Environment (IDE) for C#

Microsoft provides the following development tools for C# programming –

- Visual Studio 2010 (VS)
- Visual C# 2010 Express (VCE)
- Visual Web Developer

The last two are freely available from Microsoft official website. Using these tools, you can write all kinds of C# programs from simple command-line applications to more complex applications. You can also write C# source code files using a basic text editor, like Notepad, and compile the code into assemblies using the command-line compiler, which is again a part of the .NET Framework.

Visual C# Express and Visual Web Developer Express edition are trimmed down versions of Visual Studio and has the same appearance. They retain most features of Visual Studio. In this tutorial, we have used Visual C# 2010 Express.

You can download it from Microsoft Visual Studio . It gets installed automatically on your machine.

Note: You need an active internet connection for installing the express edition.

## Writing C# Programs on Linux or Mac OS

Although the .NET Framework runs on the Windows operating system, there are some alternative versions that work on other operating systems. **Mono** is an open-source version of the .NET Framework which includes a C# compiler and runs on several operating systems, including various flavors of Linux and Mac OS. Kindly check Go Mono .

The stated purpose of Mono is not only to be able to run Microsoft .NET applications cross-platform, but also to bring better development tools for Linux developers. Mono can be run on many operating systems including Android, BSD, iOS, Linux, OS X, Windows, Solaris, and UNIX.