Microsoft .NET

Microsoft .NET (pronounced 'dot net') is a comprehensive software development framework created by Microsoft. It provides a controlled environment for developing and running applications on Windows. Here are the key components and features of .NET:

Framework Class Library (FCL)

A vast collection of reusable classes, interfaces, and value types that provide functionality for a wide variety of programming tasks, such as file reading and writing, graphic rendering, database interaction, and XML document manipulation.

Common Language Runtime (CLR)

The virtual machine component of .NET. It manages the execution of .NET programs and provides services such as memory management, type safety, exception handling, garbage collection, and thread management.

Languages

NET supports multiple programming languages, including C#, Visual Basic .NET (VB.NET), and F#. It also supports interoperability among these languages.

ASP.NET

A set of technologies in .NET for building web applications and services. ASP.NET allows developers to build dynamic websites, web applications, and web services.

Windows Forms

A graphical (GUI) class library included as a part of Microsoft .NET. It provides a platform to create rich desktop client applications.

Entity Framework

An object-relational mapper (ORM) that enables developers to work with relational data using domain-specific objects. It eliminates the need for most of the data-access code that developers usually need to write.

.NET Core

A cross-platform, open-source version of .NET that can run on Windows, macOS, and Linux. It is designed to be modular, lightweight, and fast, and is particularly suited for cloud applications and microservices.

.NET 5 and beyond

Starting with .NET 5, Microsoft has unified the .NET platform. This means that .NET 5 and later versions consolidate .NET Core, .NET Framework, and Xamarin/Mono into a single, cross-platform framework for building all types of applications.

NuGet

The package manager for .NET. It hosts a vast repository of packages that developers can use to add functionality to their .NET applications.

Integrated Development Environment (IDE)

Visual Studio is the primary IDE used for developing .NET applications. It provides a range of tools and features for coding, debugging, testing, and deploying applications.