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1. Evolution of .NET Framework and C#

In the year 2002 .NET started with it release of the first version. It was developed by Microsoft. Back then, it was a closed framework but now, it is an open source platform, and free of any licensing cost.

The .NET framework is a software development platform which was mainly designed for building Windows-based applications. Since the past 2 decades, .NET framework has become a main part of custom applications used in companies around the world.

The .NET framework functions with different programming languages such as C++, C# etc, just to mention a few. C# alongside .NET offered a modern object oriented language. C# has also continued to embrace features like LINQ, pattern matching, enhancing developer productivity. In all, the evolution showcases Microsoft commitment to adapting to tends in the industry and providing a powerful and versatile ecosystem.

1. Mono: Mono is an open source implementation of the .NET framework, which allows developers build and run .NET applications on various platforms, including Linux and macOS. It also provides a cross- platform runtime and environment, thereby enabling code portability.

XAMARIN: Xamarin is a mobile app development platform that uses C# for building native applications for IOS, Android and Windows. It allows developers to share code across different platforms enhancing efficiency by leveraging a common codebase while delivering native performance.

COM[Component Object Mode]: COM is a Microsoft technology that enables software components to communicate and interact in a distributed environment. It defines a binary standard for developing and using components, facilitating interoperability between different languages and systems.

NET Core: NET Core is an open source, cross- platform framework that serves as a modular and high performance alternative to the traditional .NET framework. It allows developers to build and run applications on Windows, Linux and macOS which will bring more performance, flexibility and modern development practices.

Unity C#: Unity is a real-time 3D development platform for building 2D and 3D application, like games and simulations, using the C# programming language. Developers write C# scripts to define how objects in the game behave, also handle user input qand manage game logic.

1. Functions of CLR

Garbage Collection: This manages memory through automatic garbage collection. It identifies and cleans unused object, free up memory.

Exception handling: This ensures structured error handling, promotes cleaner code by separating error handling logic from the main code.

Security: It restricts the permissions granted to running code and enhance system safety.