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1.

The .NET Framework and C# have evolved significantly over the years. The .NET Framework was introduced by Microsoft in 2002, providing a platform for building and running Windows applications. C# is a programming language developed by Microsoft specifically for the .NET Framework, known for its simplicity and versatility.

2.

- Mono: An open-source implementation of the .NET Framework that allows developers to run .NET applications on various platforms, including Linux and macOS.

- Xamarin: A cross-platform development framework that uses C# and allows developers to create native mobile applications for iOS, Android, and Windows using a single codebase.

- COM: Component Object Model (COM) is a Microsoft technology that enables software components to communicate and interact with each other.

- .NET Core: It is an open-source, cross-platform framework that is a modern and lightweight version of the .NET Framework. It allows developers to build applications that can run on Windows, Linux, and macOS.

- Unity C#: Unity is a popular game development engine that uses C# as its scripting language, providing a powerful and flexible environment for creating games and interactive experiences.

- REST: Representational State Transfer (REST) is an architectural style for designing networked applications. It uses standard HTTP methods like GET, POST, PUT, and DELETE to perform operations on resources.

3.

1. Memory Management: CLR manages memory allocation and deallocation, automatically handling tasks like garbage collection to free up memory resources.

2. Exception Handling: CLR provides a robust exception handling mechanism, allowing developers to catch and handle runtime exceptions, ensuring the stability and reliability of the application.

3. Code Verification and Execution: CLR verifies the safety and integrity of the code before executing it, ensuring that it adheres to security and type-safety measures, protecting against potential vulnerabilities.