1. **WRITE A SHORT NOTE ON THE EVOLUTION OF.NET FRAMEWORK AND C# (100 WORDS)**

**Evolution of the .NET Framework?**

NET was evolving into a unified technology, where the differences between Core and Framework versions would blur into a singular ecosystem. Today, .NET has evolved into a vast technology, encompassing web, desktop, mobile with MAUI, gaming with Unity, IoT libraries, and even AI with Machine Learning. The .NET Framework, a comprehensive platform for building Windows-based applications.

**Evolution of the C#?**

C# was first introduced in 2000 as part of the .NET initiative. It was designed to be a simple, modern, and object-oriented language that could address the challenges faced by developers. C# drew inspiration from various programming languages such as C++, Java, and Delphi, combining their best features into a cohesive and elegant syntax.

1. **EXPLAIN THE FOLLOWING TERMS:**

MONO, XAMARIN, COM, .NET CORE, UNITY C#, REST

1. **Mono:** Mono is an open-source implementation of the .NET Framework. It allows developers to build and run .NET applications on various platforms, including Linux, macOS, and Windows. It essentially translates and executes .NET code on these systems, providing compatibility and portability. Imagine **mono** as a chameleon for software.
2. **Xamarin:** Xamarin is a platform for building cross-platform mobile applications using C#. It allows developers to write code once and deploy it across multiple platforms, including iOS, Android, and Windows. Think of Xamarin as a bridge builder.
3. **COM:** COM stands for Component Object Model. It is a binary-interface standard for software components introduced by Microsoft. Think of it as a universal translator for software components.
4. **.NET Core:** .NET Core is an open-source, cross-platform framework for building modern, cloud-based applications. It is a modular framework that allows developers to use only the components they need for their applications and runs on Windows, macOS, and Linux.
5. **Unity C#:** Unity C# refers to the programming language C# used in the Unity game engine. Unity allows developers to create 2D and 3D games and interactive experiences, and C# is the primary language used for scripting in Unity.
6. **REST:** REST stands for Representational State Transfer. It is an architectural style for designing networked applications. RESTful systems use standard HTTP methods like GET, POST, PUT, and DELETE to perform CRUD (Create, Read, Update, Delete) operations on resources. It relies on standard HTTP methods (GET, POST, PUT, and DELETE) to communicate between client and server, making it simple and widely used. Imagine it as a standardized way for applications to "talk" to each other over the web.

**CRITALLY EXPLAIN ANY 3 KEY FUNCTION OF CLR (50 WORDS)**

1. **Memory Management**: The CLR manages memory allocation and deallocation, ensuring efficient memory usage by automatically reclaiming unused memory through garbage collection.
2. **Exception Handling**: CLR provides robust exception handling mechanisms, enabling developers to gracefully handle runtime errors and exceptions, ensuring the stability and reliability of applications.
3. **Security**: CLR enforces code access security policies, verifying the permissions required for code execution, preventing unauthorized access and protecting against malicious code execution.