**What is .NET Framework?**

The **.NET Framework** is a software development platform developed by Microsoft. It provides a runtime environment and a set of libraries that developers can use to build, run, and deploy applications for Windows. The framework supports multiple programming languages, including **C#, VB.NET, and F#**.

**Key Components of .NET Framework**

1. **Common Language Runtime (CLR)**
   * The execution engine that manages code execution.
   * Provides services like garbage collection, exception handling, and security.
   * Supports multiple languages via the **Common Type System (CTS)**.
2. **Base Class Library (BCL)**
   * A collection of reusable classes and APIs for tasks like file handling, networking, and data processing.
3. **ASP.NET**
   * A framework for building web applications and services.
4. **Windows Forms (WinForms)**
   * A UI framework for creating Windows desktop applications.
5. **WPF (Windows Presentation Foundation)**
   * Another UI framework that supports rich user interfaces with XAML-based design.
6. **ADO.NET**
   * A data access technology for working with databases.
7. **Entity Framework (EF)**
   * An Object-Relational Mapping (ORM) framework for database interaction.

**Features of .NET Framework**

✅ **Language Interoperability** – Different .NET languages can work together.  
✅ **Memory Management** – Automatic garbage collection.  
✅ **Security** – Built-in authentication and encryption features.  
✅ **Scalability** – Supports applications ranging from small utilities to enterprise-level systems.  
✅ **Multi-Platform (via .NET Core)** – While .NET Framework is Windows-based, .NET Core (now .NET) allows cross-platform development.

**Versions & Evolution**

* First released in **2002** (Version 1.0).
* Last major version was **.NET Framework 4.8** (2019).
* **.NET 5 and later (e.g., .NET 6, .NET 7, .NET 8)** replaced .NET Framework, offering cross-platform support and improved performance.

**Difference Between .NET Framework, .NET Core, and .NET (Modern .NET)**

| **Feature** | **.NET Framework** | **.NET Core** | **.NET (5+)** |
| --- | --- | --- | --- |
| Platform | Windows-only | Cross-platform | Cross-platform |
| Performance | Moderate | Faster | Best |
| Open Source | No | Yes | Yes |
| Future Support | No new versions | Replaced by .NET | Actively developed |