.NET Core

- .NET Core is a new version of .NET Framework.
- .NET Core is a free, open-source, general-purpose development platform maintained by Microsoft.
- It is a cross-platform framework that runs on Windows, macOS, and Linux operating systems.
- .NET Core is modular, lightweight, fast, and cross-platform Framework.
- .NET Core Framework can be used to build different types of applications such as mobile, desktop, web, cloud, IoT, machine learning, microservices, game, etc.

.NET Core Characteristics

- **Open-source Framework:** .NET Core is an open-source framework maintained by Microsoft and available on GitHub under MIT and Apache 2 licenses.
- **Cross-platform:** .NET Core runs on Windows, macOS, and Linux operating systems. There are different runtime for each operating system that executes the code and generates the same output.
- **Consistent across Architectures:** Execute the code with the same behavior in different instruction set architectures, including x64, x86, and ARM.
- **Wide-range of Applications:** Various types of applications can be developed and run on .NET Core platform such as mobile, desktop, web, cloud, IoT, machine learning, microservices, game, etc.
- **Supports Multiple Languages:** You can use C#, F#, and Visual Basic programming languages to develop .NET Core applications. You can use your favorite IDE, including Visual Studio 2017/2019, Visual Studio Code, Sublime Text, Vim, etc.

.NET Core Characteristics

- **Modular Architecture:** .NET Core supports modular architecture approach using NuGet packages. There are different NuGet packages for various features that can be added to the .NET Core project as needed. Even the .NET Core library is provided as a NuGet package. The NuGet package for the default .NET Core application is Microsoft.NETCore.App.
- This way, it reduces the memory footprint, speeds up the performance, and easy to maintain.
- **CLI Tools:** .NET Core includes CLI tools (Command-line interface) for development
- **Flexible Deployment:** .NET Core application can be deployed in IIS, Apache or with Docker Containers.
- **Compatibility:** Compatible with .NET Framework.

.NET Core Version History

Version	Start Date	End Date
.NET 8	Nov 14, 2023	
.NET 7	Nov 8, 2022	May 14, 2024
.NET 6.0 (LTS)	Nov 8, 2021	Nov 12, 2024
.NET 5.0	Nov 10, 2020	May 10, 2022
.NET Core 3.1 (LTS)	Dec 3, 2019	Dec 13, 2022
.NET Core 3.0	Sep 23, 2019	Mar 3, 2020
.NET Core 2.2	Dec 4, 2018	Dec 23, 2019
.NET Core 2.1 (LTS)	May 30, 2018	Aug 21, 2021
.NET Core 2.0	Aug 14, 2017	Oct 1, 2018
.NET Core 1.1	Nov 16, 2016	Jun 27, 2019
.NET Core 1.0	Jun 27, 2016	Jun 27, 2019

Install .NET Core

- .NET Core can be installed in two ways: By installing Visual Studio 2017/2019 or by installing .NET Core Runtime or SDK.
- .NET Core installer already contains ASP.NET Core libraries, so there is no separate installer for ASP.NET Core.

Differences Between .NET Core and .NET Framework

BASED ON	.NET Core	.NET Framework
Open Source	.Net Core is an open source.	Certain components of the .Net Framework are open source.
Cross-Platform	Works on the principle of “build once, run anywhere”. It is compatible with various operating systems — Windows, Linux, and Mac OS as it is cross-platform.	.NET Framework is compatible with the windows operating system. Although, it was developed to support software and applications on all operating systems.
Application Models	.Net Core does not support desktop application development and it rather focuses on the web, windows mobile, and windows store.	.Net Framework is used for the development of both desktop and web applications as well as it supports windows forms and WPF applications.
Installation	.NET Core is packaged and installed independently of the underlying operating system as it is cross-platform.	.NET Framework is installed as a single package for Windows operating system.

Differences Between .NET Core and .NET Framework

BASED ON	.NET Core	.NET Framework
Support for Micro-Services and REST Services	.Net Core supports the development and implementation of micro-services and the user has to create a REST API for its implementation.	.Net Framework does not support the development and implementation of microservices but it supports the REST API services.
Performance and Scalability	.NET Core offers high performance and scalability.	.Net Framework is less effective in comparison to .Net Core in terms of performance and scalability of applications.
Compatibility	.NET Core is compatible with various operating systems — Windows, Linux, and Mac OS.	.NET Framework is compatible only with the Windows operating system.
Android Development	.NET Core is compatible with open-source mobile application platforms, i.e. Xamarin, through the .NET Standard Library. Developers use Xamarin's tools to configure the mobile app for specific mobile devices such as iOS, Android, and Windows phones.	.NET Framework does not support any framework for mobile application development.

Differences Between .NET Core and .NET Framework

BASED ON	.NET Core	.NET Framework
Packaging and Shipping	.Net Core is shipped as a collection of Nugget packages.	All the libraries of .Net Framework are packaged and shipped together.
Deployment Model	Whenever the updated version of .NET Core gets initiated; it is updated instantly on one machine at a time, thereby getting updated in new directories/folders in the existing application without affecting it. Thus, .NET Core has a good and flexible deployment model.	In the case of .Net Framework, when the updated version is released it is first deployed on the Internet Information Server only.
CLI Tools	.NET Core provides light-weight editors and command-line tools for all supported platforms.	.Net Framework is heavy for Command Line Interface and developers prefer to work on the lightweight Command Line Interface.