



## Introduction to .NET

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By ESH Solutions Ltd.

# Agenda – Day 1

- Introduction to .NET: Overview
- .NET Runtime Environment
- Difference between .NET and .NET Framework
- NuGet Packages
- Just-In-Time Compilation (JIT)
- Ahead-Of-Time Compilation (AOT)
- Useful links

## Coming up next:

- C# Basics – 5 to 6 Sessions
- ASP.NET – MVC – 1 to 2 Sessions
- ASP.NET Web API – 1 Session

# Introduction to .NET

# .NET - Overview

1) .NET is a platform to build diverse arrays of applications which runs on diverse devices

Use Cases of .NET

- **Web Applications:** Using ASP.NET Core, developers can build dynamic, scalable web applications and APIs.
- **Desktop Applications:** .NET supports Windows Forms for creating desktop applications.
- **Mobile Applications:** With .NET MAUI, developers can create native mobile applications for Android and iOS.
- **Cloud Applications:** .NET provides robust support for building cloud-based applications and services, especially with Azure.
- **Game Development:** .NET can be used in game development, particularly with the Unity game engine, which supports C#.
- **IoT Applications:** .NET IoT libraries enable the development of Internet of Things applications.
- **Machine Learning:** ML.NET allows easily build, train, deploy, and consume custom models in their .NET applications

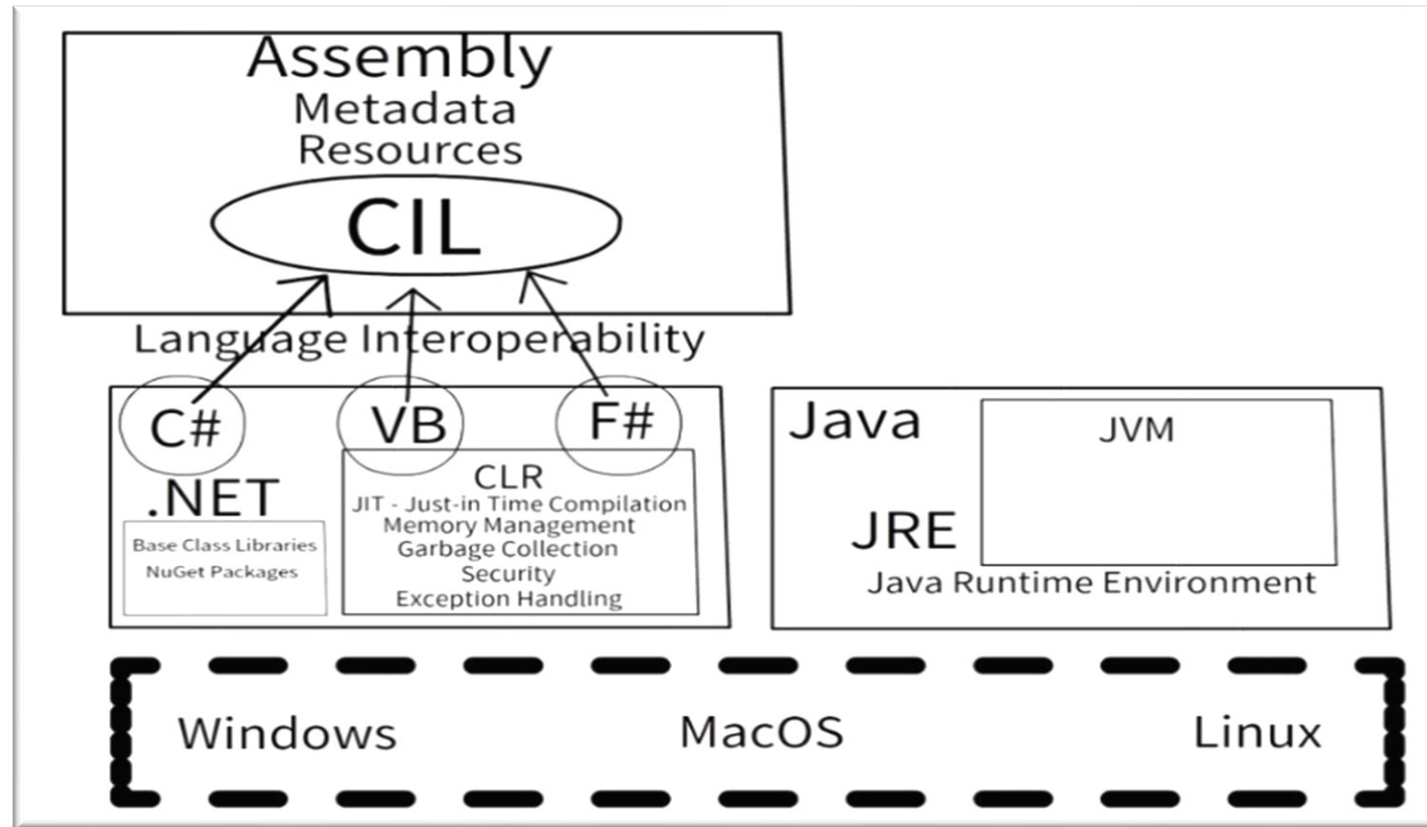
2) .NET is an open source

3) Multiple Languages:

4) Libraries and APIs:

5) Data Access: Integration with ADO.NET, Entity Framework Core, Dapper, and other data access technologies to interact with SQL and NoSQL databases

# .NET – Runtime environment

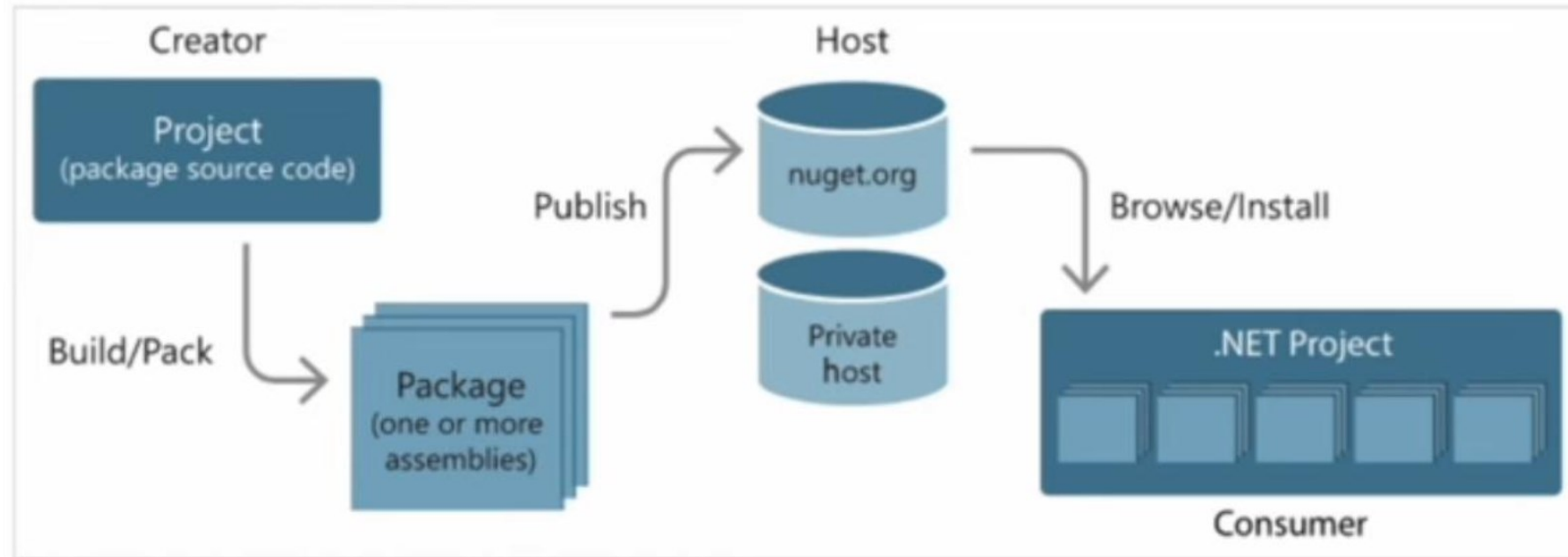


# Difference between .NET and .NET Framework

<b>.NET (V. 5+)</b>	<b>.NET Framework (V. &lt;= 4.8.1)</b>
Runs on Linux, macOS, & Windows	Only runs on Windows
Open-source & accepts contributions from community	Source code available but does not accept contributions
All the innovation happens here! Supports more application types and delivers higher performance	Security & reliability bug fixes only
Not shipped with operating system	Included in Windows & updated by Windows updates
<b>Recommended for new development</b>	

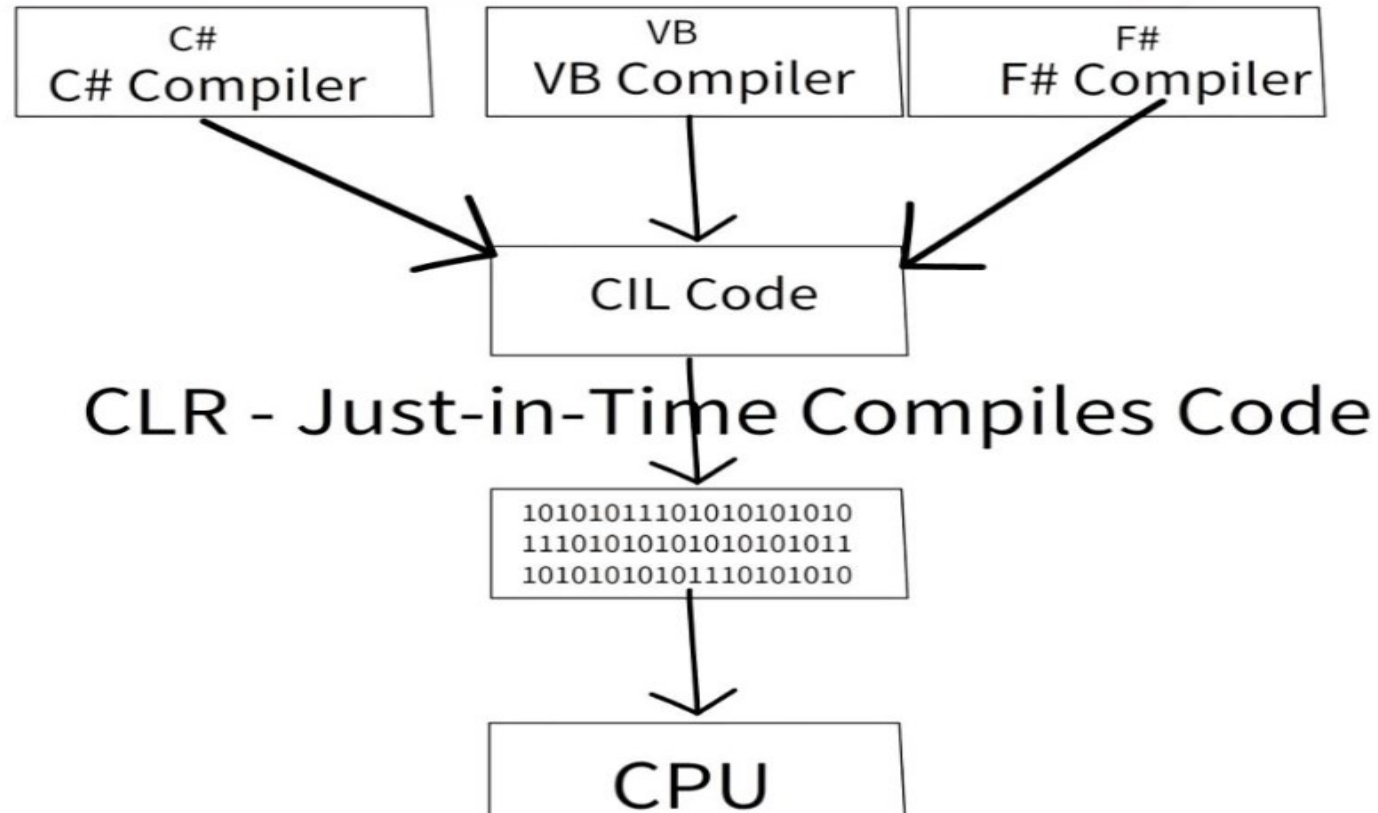
# .NET - NuGet

NuGet (pronounced "New Get") is a package manager for .NET that lets you produce and consume packages.



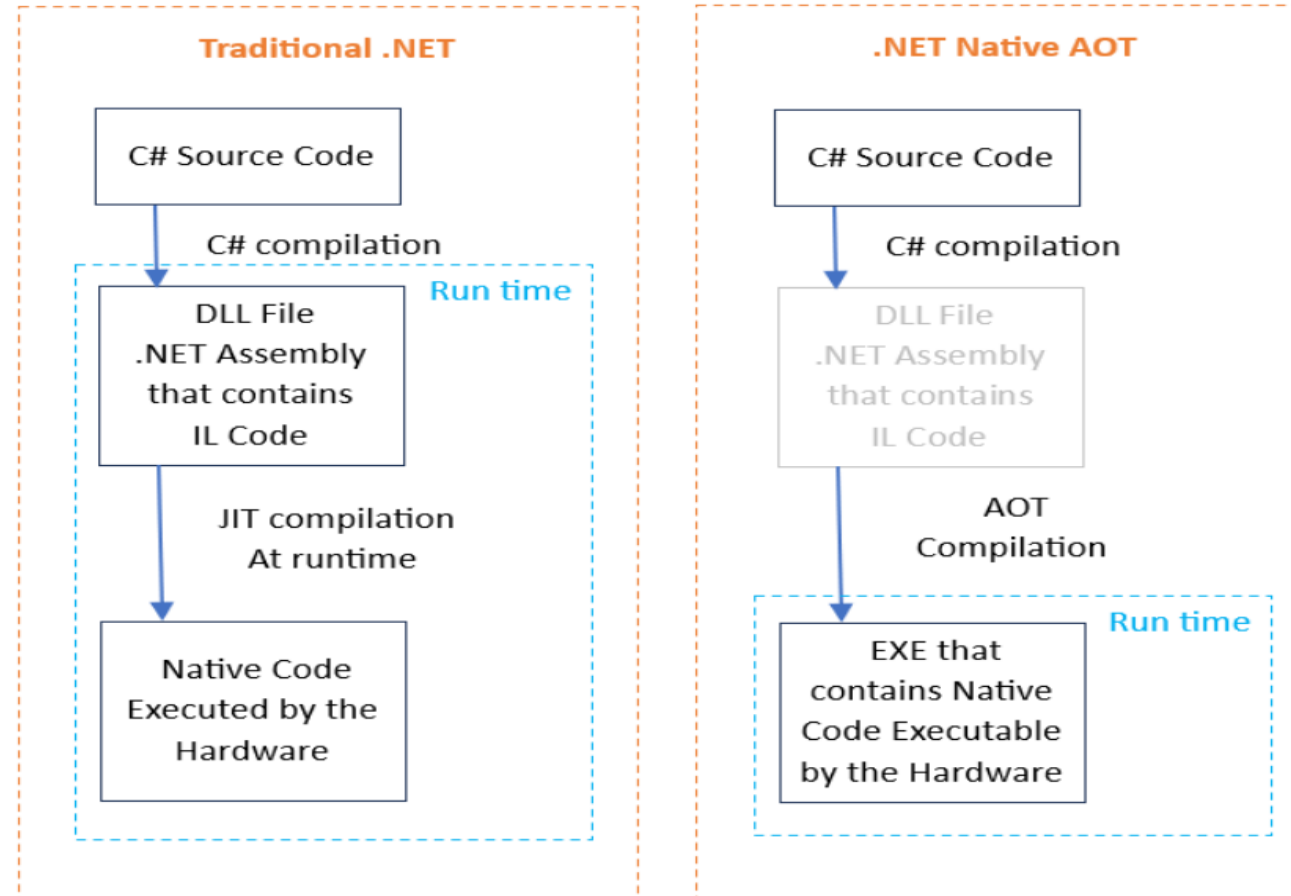
# .NET – Just-In-Time Compilation (JIT)

Just-In-Time (JIT) compiler is a crucial component within the Common Language Runtime (CLR), responsible for managing the execution of .NET programs, regardless programming language used.





# .NET – Ahead-of-Time Compilation (AOT)



# .NET – Useful Links

.NET

<https://dotnet.microsoft.com/en-us/>

Microsoft Learn

<https://learn.microsoft.com/en-us/training/>

Fiddle

<https://dotnetfiddle.net/>

Visual Studio

<https://visualstudio.microsoft.com/vs/community/>

Visual Studio Code

<https://code.visualstudio.com/download#>

Nuget (exe)

<https://www.nuget.org/downloads>

# C# - Basics

# C# Topics and planned sessions

Categories		No of Sessions
Introduction	Mandatory	1
Variable Types, Operators and Commenting	Mandatory	
Control statements and Loops	Mandatory	
Inbuilt Methods and Namespace	Mandatory	
Object Oriented concepts	Mandatory	
Exceptions	Mandatory	
Access Modifiers	Mandatory	
Variable Types (Advanced)	Optional	1
Best Practices and Good to Knows	Optional	
Managing Large Classes	Optional	1 or 2
Optional Parameters	Optional	
Filtering & Sorting Data	Optional	
Asynchronous Programming	Optional	



# Thank you

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Thanks to your commitment and strong work ethic, we know next year will be even better than the last.

We look forward to working together.

Visit us: <https://eshci.com/>

