

# C# Language Evolution

Concepts of Programming Languages Research

Prof. Khaled Nasser ElSayed

Presented by: [Your Group Names] | Section: [Your Section]

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# The Foundation of C#

Part I: History, Environment, and Classification

# Development History

-  **Year:** Announced in 2000; Released in 2002.
-  **People:** Lead by **Anders Hejlsberg** and team.
-  **House:** Developed by **Microsoft Corporation**.
-  **Environment:** Integrated with .NET Framework & Visual Studio.

*Source: [Wikipedia, GeeksforGeeks]*

 Anders Hejlsberg

# Domain and Category

## Category

C# is a **Multi-paradigm** language, supporting:

- Object-Oriented (OO)
- Functional & Generic
- Event-driven & Imperative

## Domain

Widely used in various sectors:

- **Web:** ASP.NET Core
- **Desktop:** Windows Forms/WPF
- **Gaming:** Unity Engine
- **Enterprise:** Secure Business Logic

# Goals, Concerns & Success



## Language Goals

Create a simple, modern, type-safe, and object-oriented language for productivity.



## Primary Concerns

Security, managed memory (Garbage Collection), and platform independence.



## Major Success

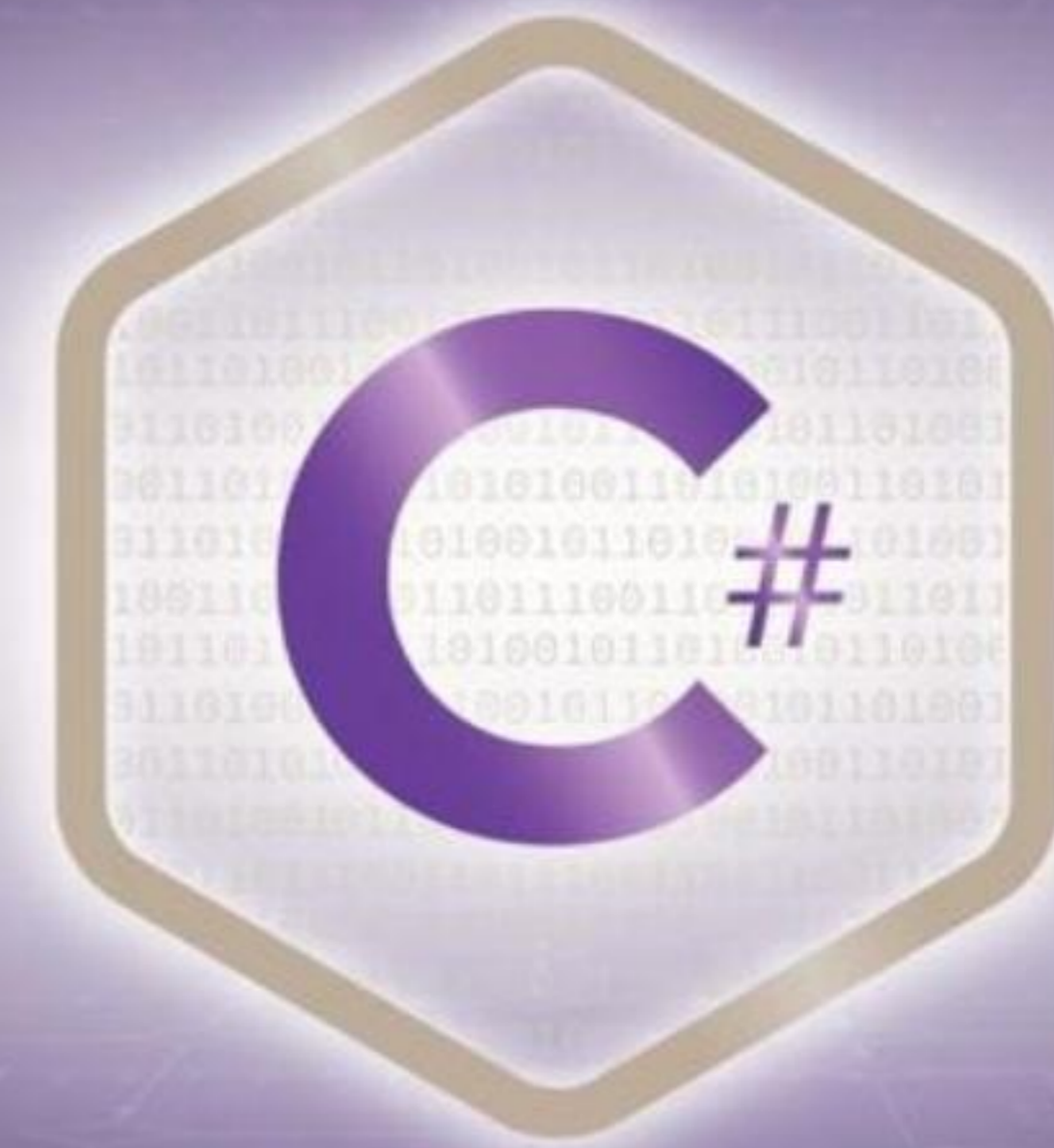
One of the top 5 languages worldwide; dominates Windows and Cross-platform development.

# Special Innovations

## What is New?

- 🔍 **LINQ:** Integrated queries for data access.
- ⚡ **Async/Await:** Simplified parallel programming.
- 📁 **Properties:** Elegant encapsulation syntax.

Source: [C# Station - Created History]

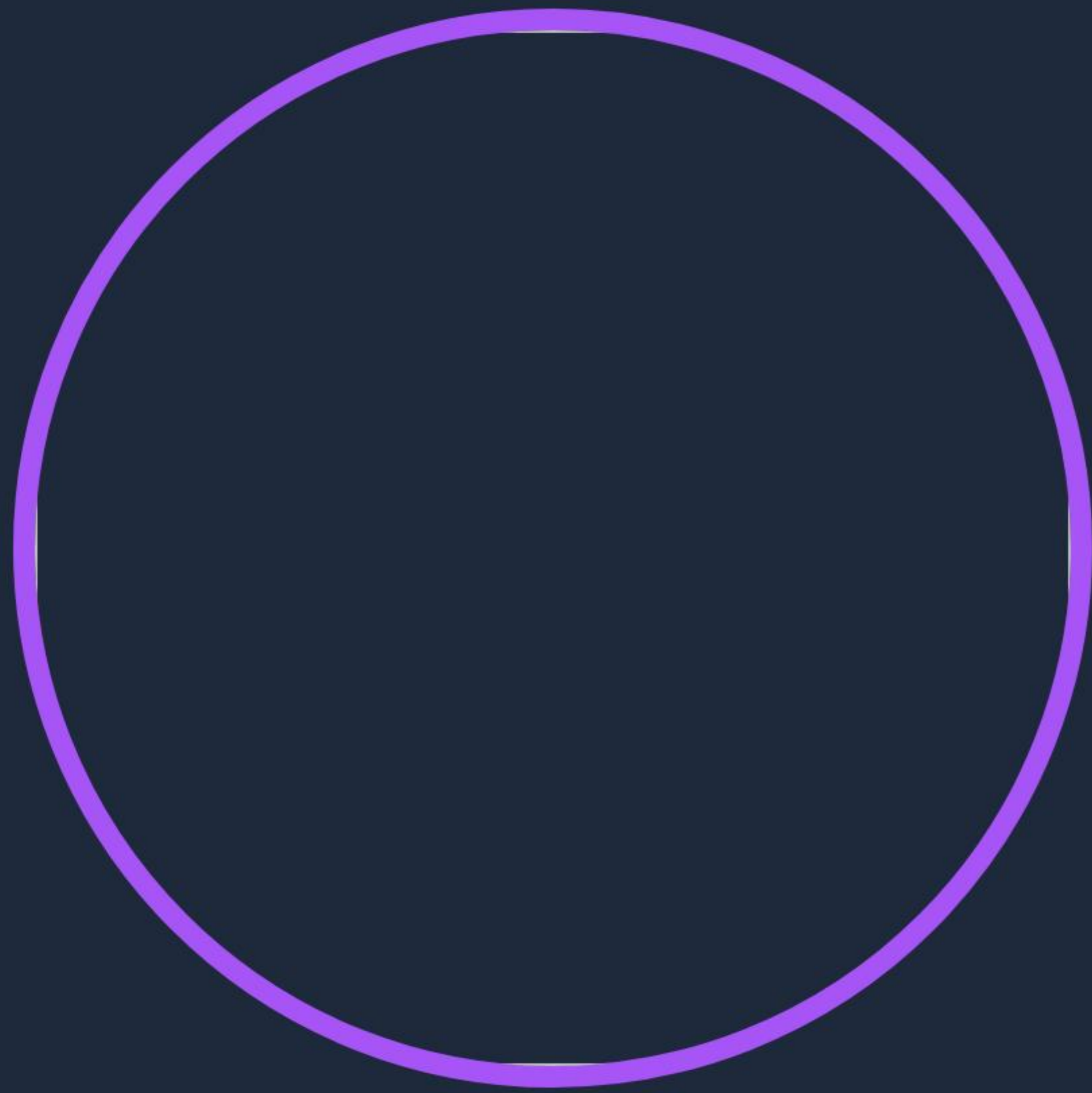


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# Language Mechanics

Part II: Overview, Syntax, and Practical Examples

# Overview & Execution



## The .NET Ecosystem

C# code compiles to **Intermediate Language (IL)**, which runs on the **Common Language Runtime (CLR)**.

- ✓ Type-safe and component-oriented.
- ✓ Managed memory via Garbage Collector.
- ✓ Robust Standard Library.

*Source: [Coursera - C# Learning Roadmap]*

# Major Parts & Commands

Component	Description	Example Code Snippet
Namespace	Organizes the classes logically.	<code>using System;</code>
Class	The blueprint for creating objects.	<code>class MyClass { ... }</code>
Method	A block of code to perform tasks.	<code>void SayHello() { }</code>
I/O	Standard input and output.	<code>Console.WriteLine("Hello");</code>

Source: [Microsoft Learn - C# Guide]

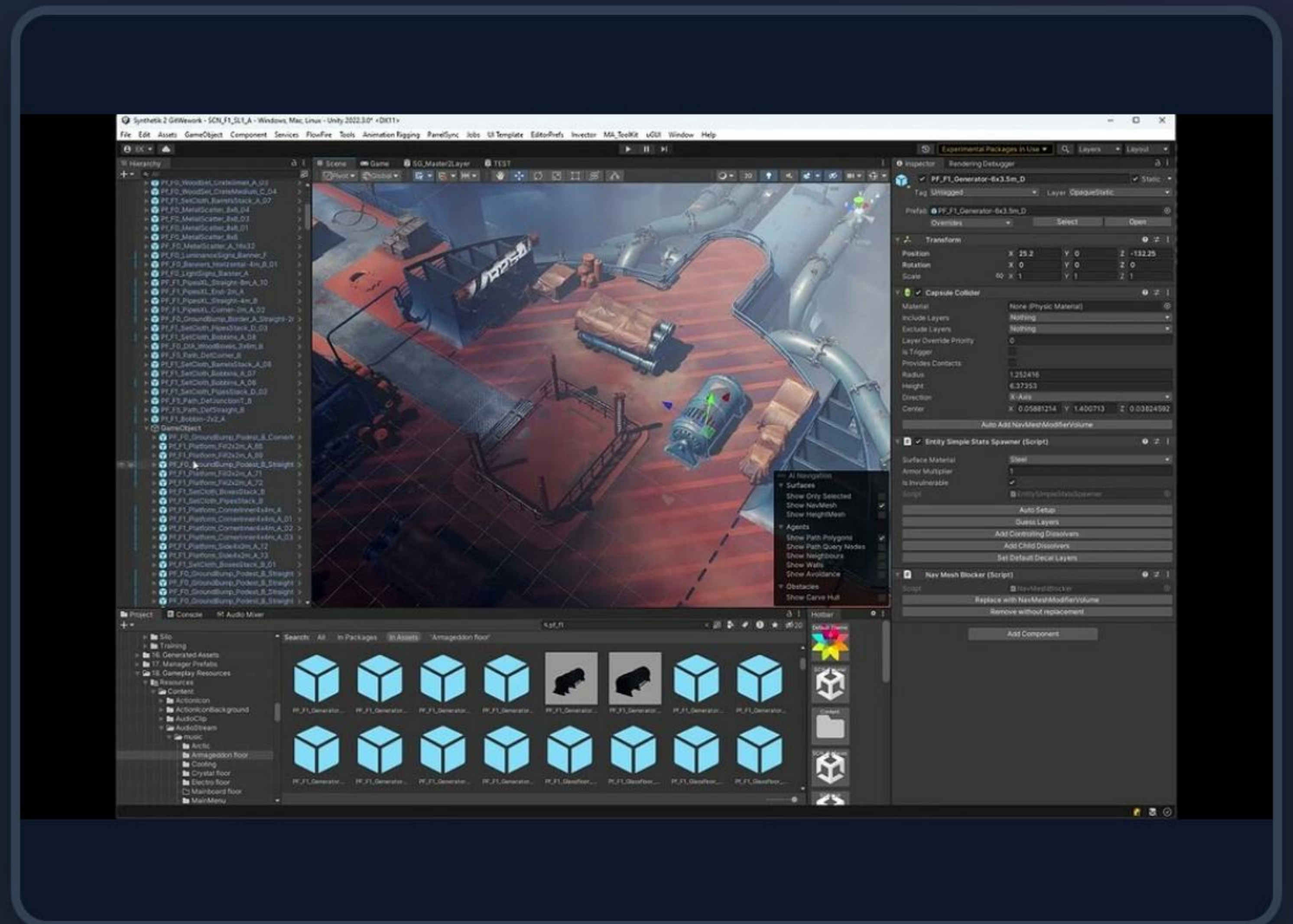
# Code in Action

## Hello World & LINQ

```
// Standard Output  
Console.WriteLine("Hello, Course!");  
  
// LINQ Example  
var results = data.Where(x => x.Price > 100);
```

Syntax is derived from C and C++, making it easy to learn for many developers.

Source: [\[GeeksforGeeks Examples\]](#)








# Evaluation & Comments

- ✓ **Pros:** High productivity, safe execution, and exceptional IDE support (Visual Studio).
- ✓ **Growth:** Evolution towards functional features makes it very modern.
- ✗ **Cons:** Runtime overhead compared to C++, historically tied to Windows (though improved).
- ★ **Final Word:** Essential skill for enterprise and game development.

*Source: [Universal Class Evaluation]*

# List of References

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-  Sebesta, R. W. (2018). *Concepts of Programming Languages*. Pearson.
-  GeeksforGeeks (2023). *C# Version History and Features*. [Online].
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# Questions?

Thank you for your time and attention.

C# Research Project | 2026

# Image Sources



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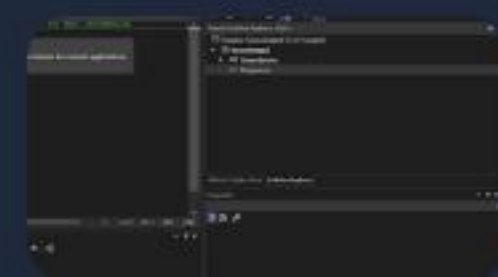


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