

# C# 10 Fundamentals

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Getting Started with C# 10 and .NET 6

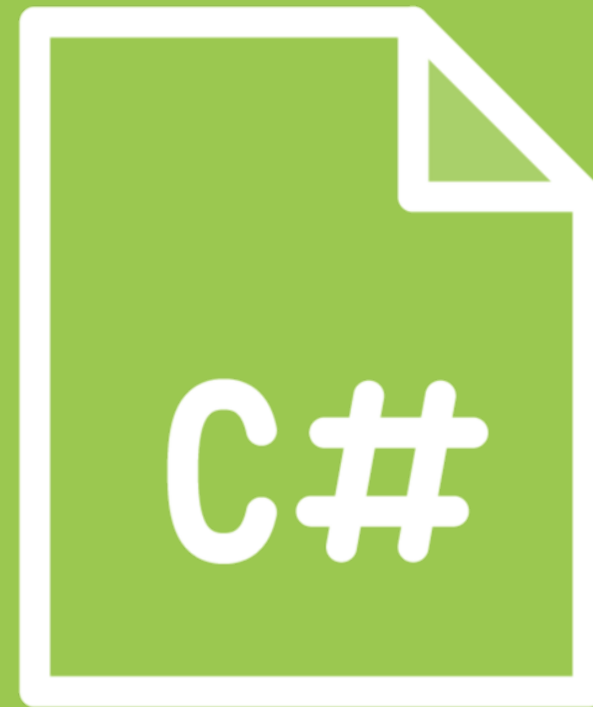


**Gill Cleeren**

CTO Xpirit Belgium

@gillcleeren | [xpirit.com/gill](https://xpirit.com/gill)





# Learning C# is a great choice!

C# is part of .NET





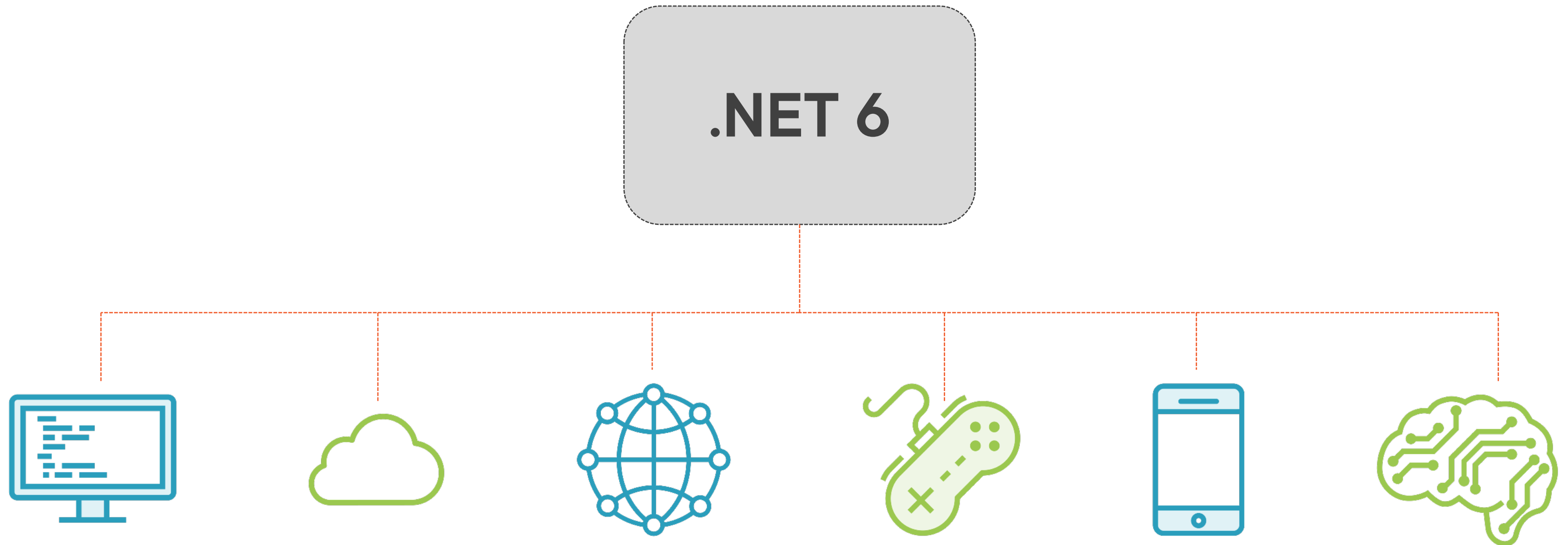
# Hello .NET

Developer platform

Open source



# What Can You Do with .NET?



# The .NET Ecosystem



**Languages**



**Libraries**



**Tools**





# .NET 6

Cross-platform





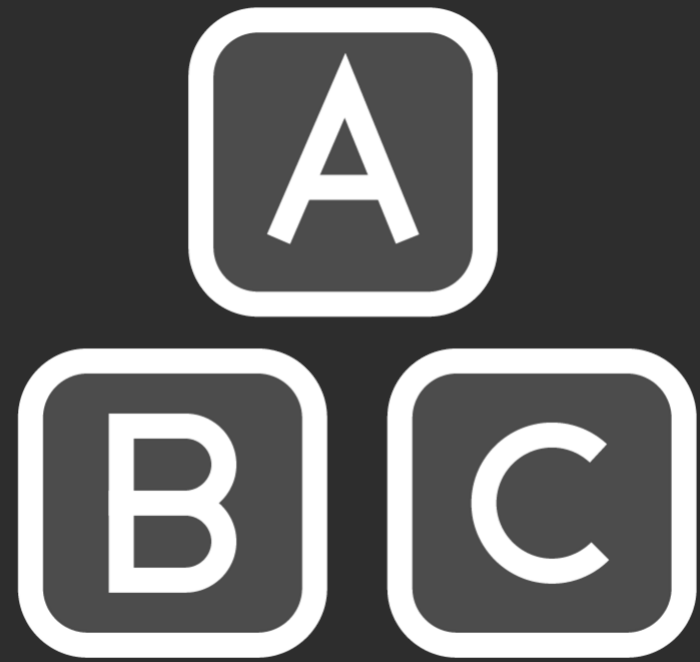
# The Languages of .NET

C#

Visual Basic

F#





No C# knowledge is required!





# What Is Programming?

★★★★★ By Simon Allardice

This is an accessible, language-agnostic course on the fundamentals of programming. Learn how to get started programming - in any language.





## Bethany's Pie Shop HR

- HR Management software







Follow along  
with everything I'm doing!



# Downloads for This Course

[Table of contents](#)[Description](#)[Transcript](#)[Exercise files](#)[Discussion](#)[Learning Check](#)[Related Courses](#)

# Version Check



**This version was created by using:**

- C# 10
- .NET 6
- Visual Studio 2022 Community Edition



## Version Check



**This course is 100% applicable to:**

- C# 10
- .NET 6
- Visual Studio 2022 (any edition)

**Most code will work fine with older versions of C#**



# Overview



**Hello C#**

**Setting up your environment**

**Building your first C# program**

**Debugging our code**

**Building applications using the CLI**

**Browsing the docs**

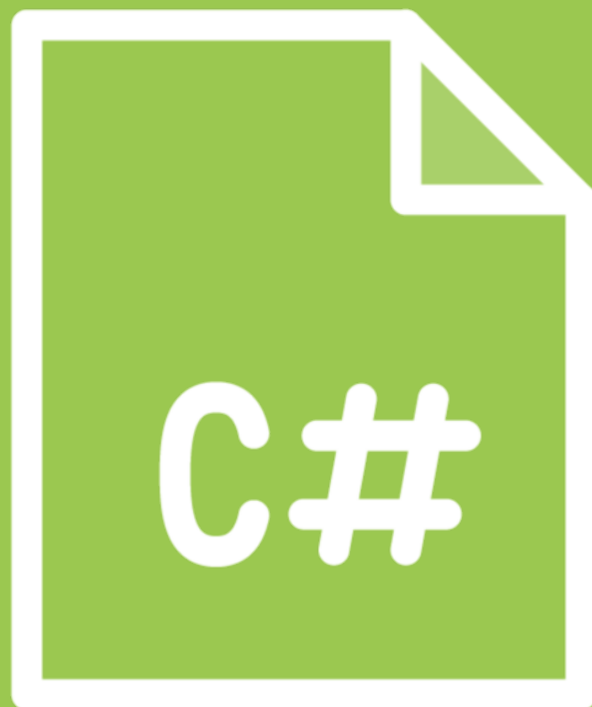


# Hello C#

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# Hello C#

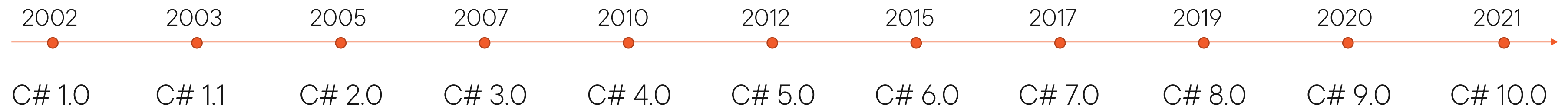
Main language for .NET development

Object-oriented and type-safe  
programming language

Familiar for C, C++, Java and JS  
developers



# C# Is Actively Maintained



# Hello C#

**Console  
applications**

**Desktop  
applications**

**Web applications**

**Mobile applications**

**Services**



# Setting up Your Environment

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# Building .NET Applications with C#

**Visual Studio 2022**  
Windows & Mac

**.NET CLI &  
Visual Studio Code**  
All platforms





# Introducing Visual Studio 2022

Flagship IDE  
(Integrated Development Environment)

Many features



# Visual Studio 2022 Editions

**Community**

**Free to use**

**Professional**

**Paid**

**Aimed at smaller teams**

**Enterprise**

**Paid**

**Aimed at larger teams**



# Demo



**Setting up your environment  
for C# development**



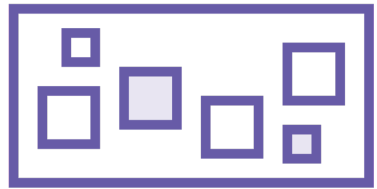


# Building Your First C# Program Using Visual Studio

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# Using Projects



**Containers for code files**



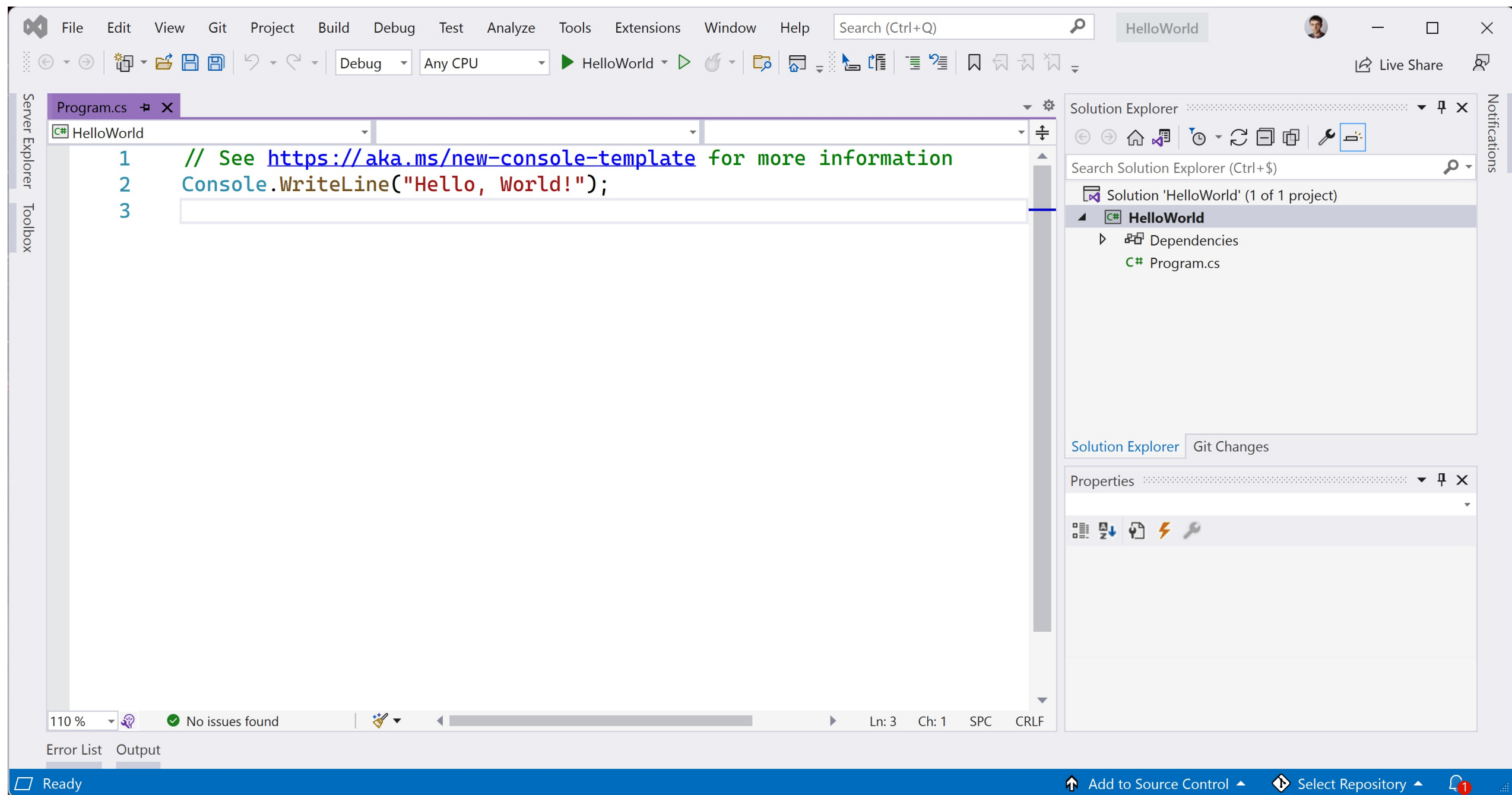
**Compiled into executable files (assembly)**



**Different templates**



# The Visual Studio 2022 Interface



# Demo



**Creating your first C# application**

**Running the application**



# Demo



**Writing C# code**

**Fixing a syntax error**



# Demo



## Looking at the generated files

- Project
- Solution
- Executable file

## Executing our compiled application



# Debugging Our Code

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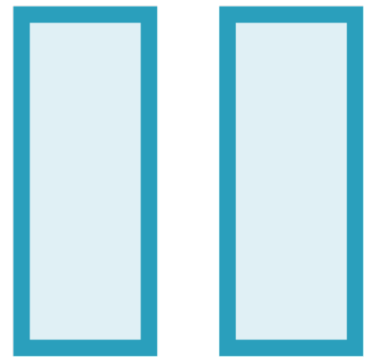
# We will make errors!

Debugging using Visual Studio





# Introducing Breakpoints



**Pause the running code**



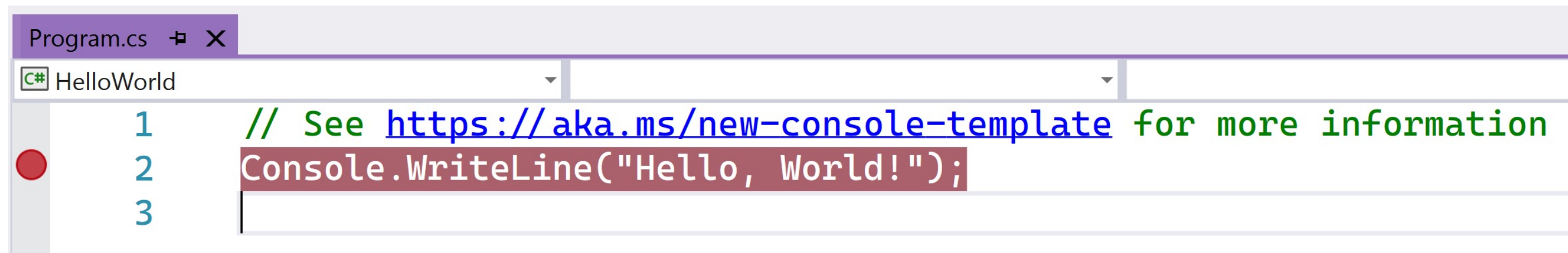
**Inspect the state of the running application**



**Step through the different lines of code**



# Adding a Breakpoint



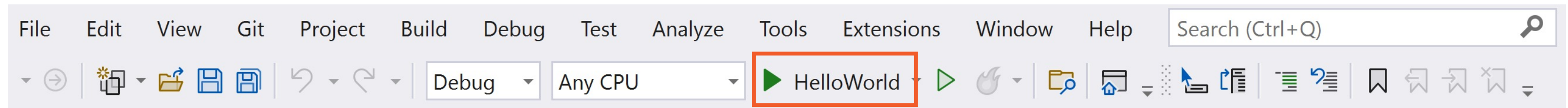
The screenshot shows a code editor window with a tab labeled "Program.cs". Below the tab, a dropdown menu shows "C# HelloWorld". The code is as follows:

```
1 // See https://aka.ms/new-console-template for more information
2 Console.WriteLine("Hello, World!");
3
```

A red circular breakpoint is placed on the left margin, aligned with line 2. The text of line 2, `Console.WriteLine("Hello, World!");`, is highlighted with a dark red background.



# Running with the Debugging Attached



# Demo



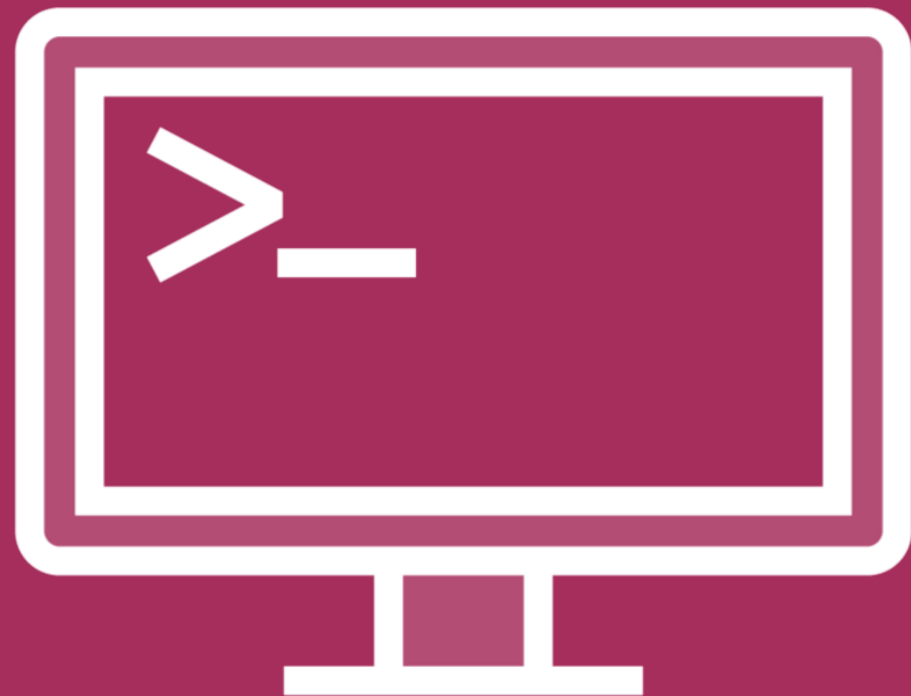
## Understanding the debugger



# Building Applications Using the CLI

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# Understanding the CLI

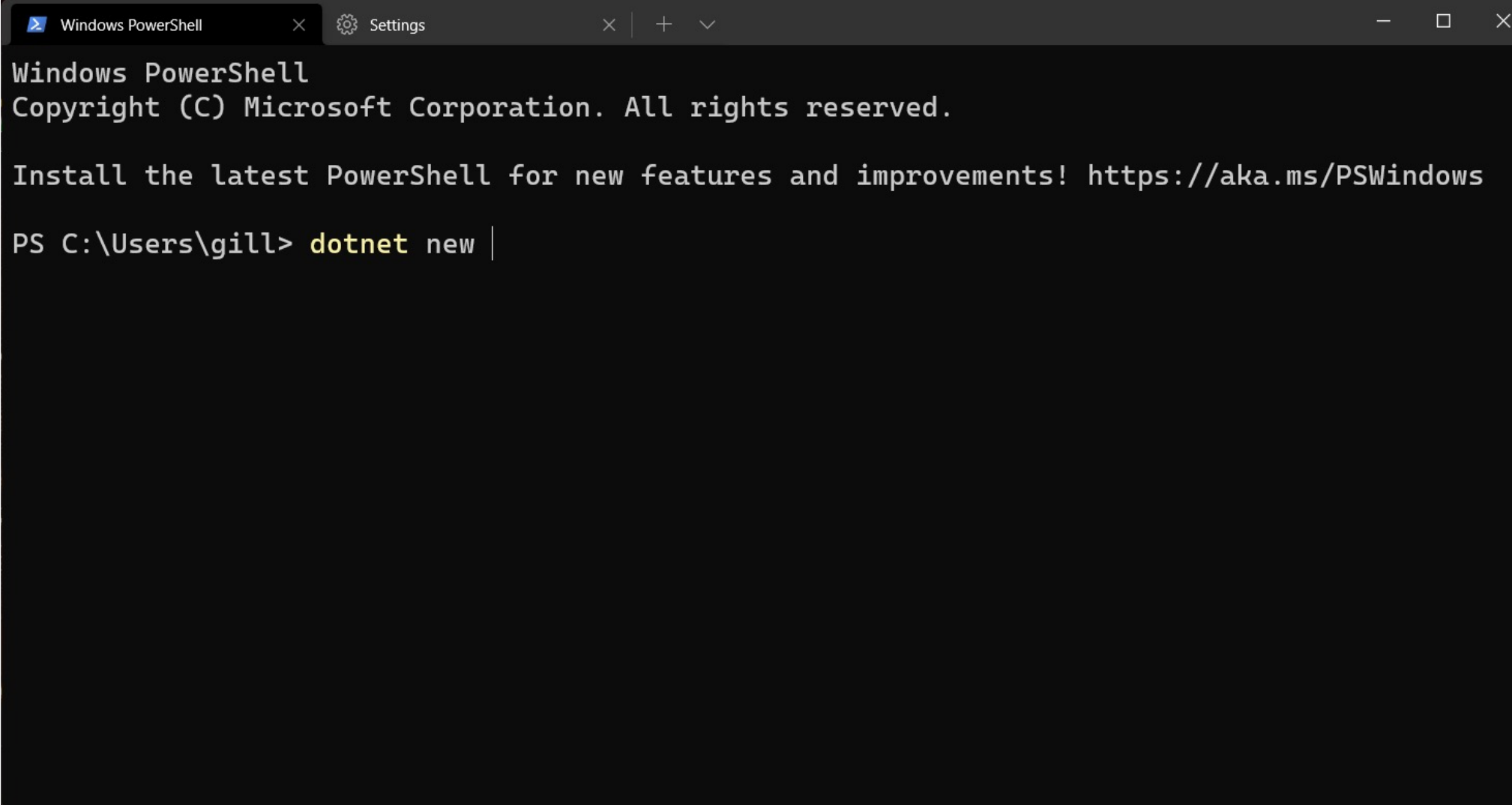
Command-line interface for .NET

Cross-platform tools

“dotnet” command with parameters



# Understanding the CLI



```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\gill> dotnet new |
```



# Creating a New Project

Create a new app

Name of app

`dotnet new console -n "FirstProgram"`

Type of app





```
dotnet new
```

◀ **Create a new project**

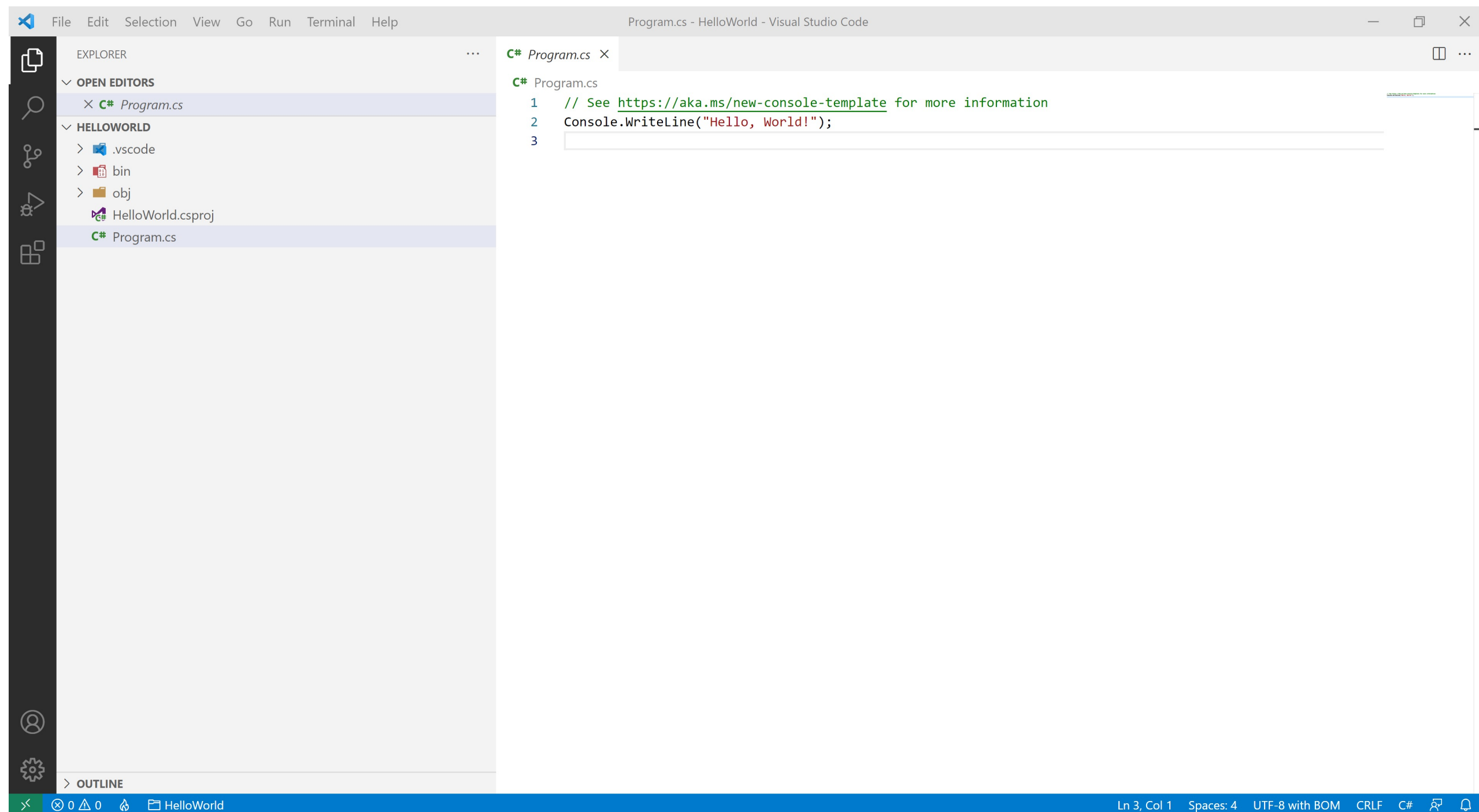
```
dotnet build
```

◀ **Compile your application**

```
dotnet run
```

◀ **Execute your application**

# Writing Code with Visual Studio Code



# Demo



**Installing the required tools**

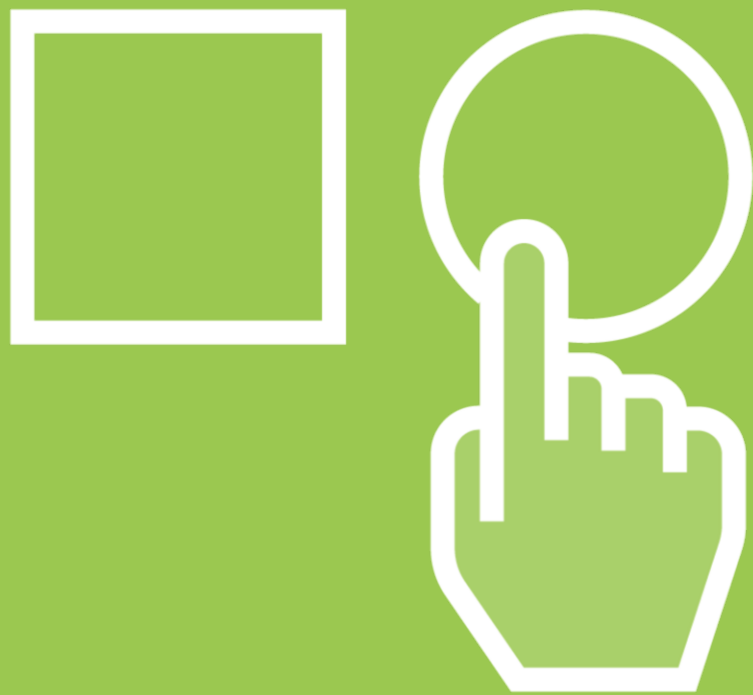
**Creating an application using the CLI**

**Editing code with VS Code**

**Compiling using the CLI**

**Running with VS Code and the CLI**





# The choice is yours!

No matter what platform, you can write  
C# applications!



# Browsing the Docs

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# Demo



## Finding information in the docs



## Summary



**C# is an object-oriented and type-safe language to write .NET applications**

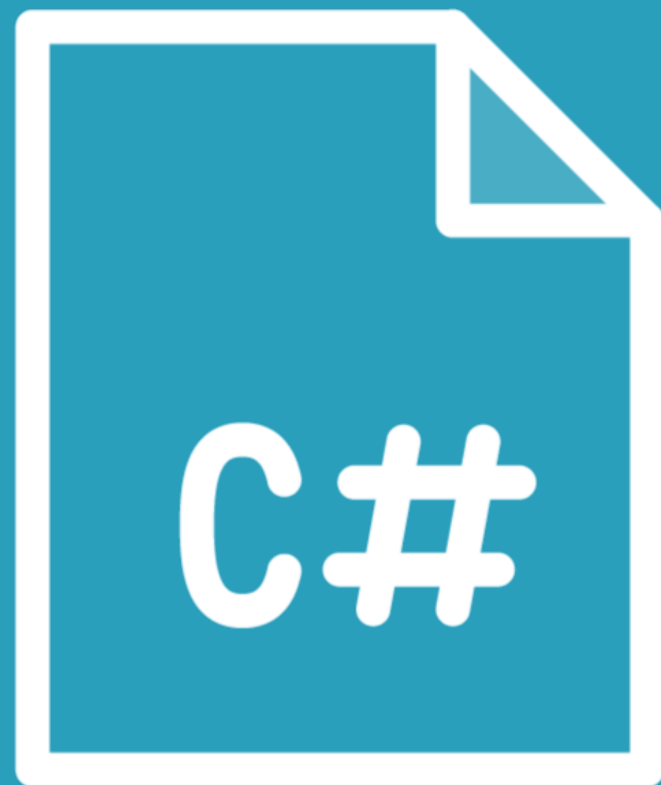
**C# is actively maintained**

**C# can be used to build all types of .NET applications**

**Applications can be created using**

- Visual Studio
- CLI (combined with VS Code)





**Up next:**  
Learning the C# syntax

