



```
namespace HelloWorld;

internal static class Program
{
    private static void Main()
    {
        Console.WriteLine("Hello, world!");
    }
}
```

Introduction to C#

C# Fundamentals – .NET Development

Agenda

C# Background

What Is C#?

Compilation

History

Design Principles

C# Design

Language Type

Why Static Types?

C# Project Structure



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Variables have fixed data types which must be known at compile-time

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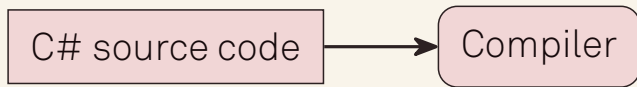
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- *.NET*'s bytecode is called *common-intermediate-language (CIL) code*
- The virtual machine used to execute *.NET* applications is known as the *common language runtime (CLR)*

C# Compilation

C# Compilation

C# source code

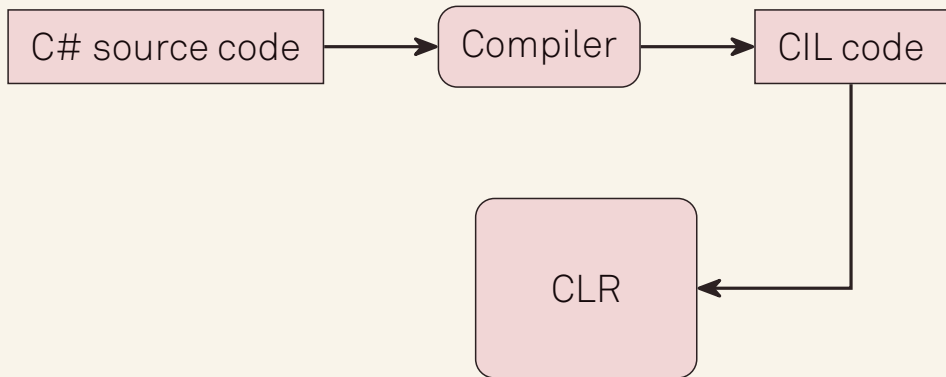
C# Compilation



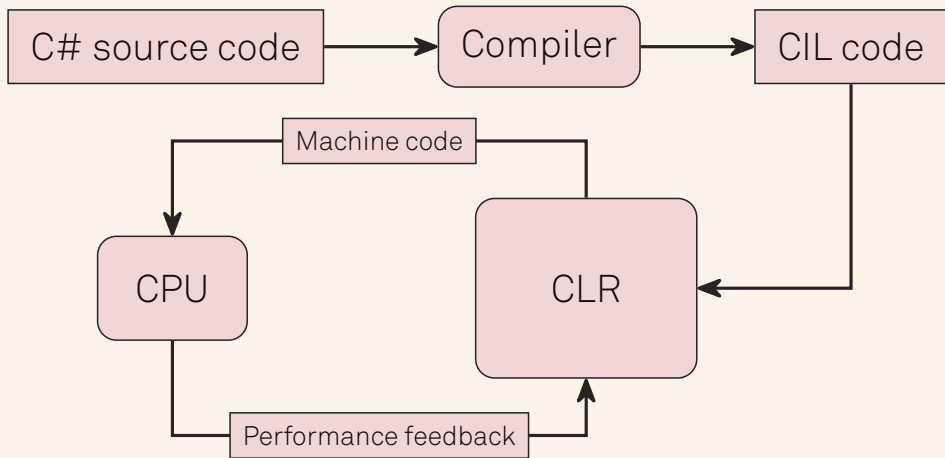
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- C# is ECMA-standardized (ECMA-334)

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- The language, and implementations thereof, should provide support for software engineering principles such as strong type checking, array bounds checking, detection of attempts to use uninitialized variables, and automatic garbage collection. Software robustness, durability, and programmer productivity are important.

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- Support for internationalization is very important.

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- Although C# applications are intended to be economical with regard to memory and processing power requirements, the language was not intended to compete directly on performance and size with C or assembly language.



C# Design

What Type of Language Is C#

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 - Console apps
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- It's a *high-level* language compared to C and a very *high-level* language compared to Assembly language

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 - Remove details about hardware control

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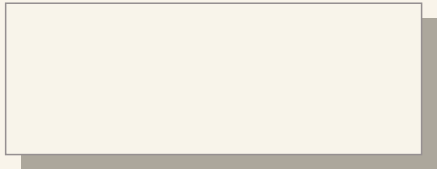
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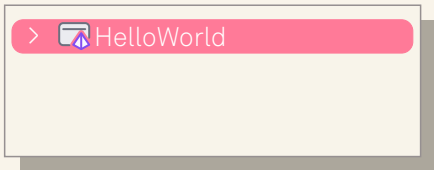
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 - TypeScript/JSDoc comments

C# Project Structure

Project Structure



Project Structure



Project Structure



C# solution

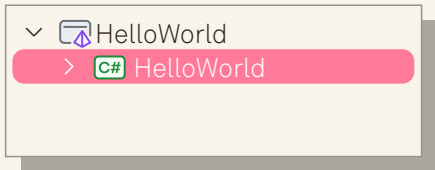
Project Structure



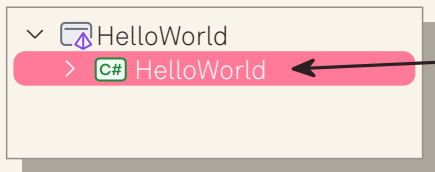
C# solution

- Solutions are containers for one or more related projects

Project Structure

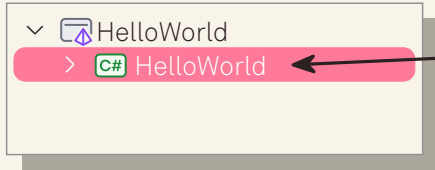


Project Structure



C# project

Project Structure



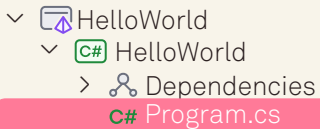
C# project

- Projects contain all code compiled into an executable, library, or website





Project Structure



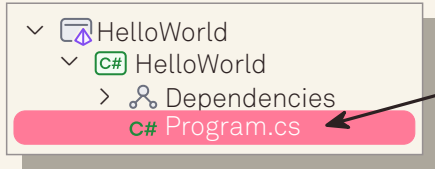
Project Structure



A diagram showing a project structure in a code editor. It features a tree view with a 'HelloWorld' folder containing a 'C# HelloWorld' subfolder. Inside this subfolder is a 'Dependencies' folder, which contains a file named 'Program.cs'. The 'Program.cs' file is highlighted with a pink background.

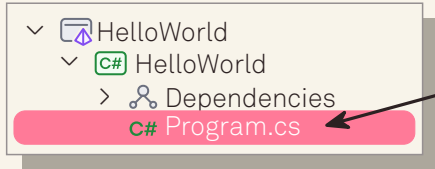
- ▼  HelloWorld
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Project Structure



C# Program class

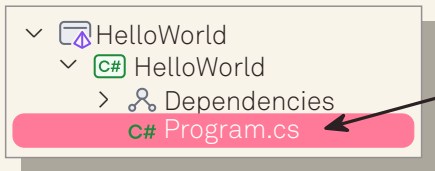
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C# Program class

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- This is where the code from the title slide goes