

# C# Fundamentals with Visual Studio 2015

An Introduction C# and .NET



K. Scott Allen

@OdeToCode

# .NET

- .NET is a software framework

Your Application

**Common Language Runtime**  
(CLR)



**Framework Class Library**  
(FCL)

# CLR

- **The CLR manages your application**
  - ❑ Memory management
  - ❑ Operating system and hardware independence
  - ❑ Language independence

Your Application

**Common Language Runtime  
(CLR)**



**Framework Class Library  
(FCL)**

# FCL

- **Framework class library**
  - A library of functionality to build applications

Your Application

**Common Language Runtime  
(CLR)**



**Framework Class Library  
(FCL)**



- One of many languages for .NET
- Syntax is similar to Java, C++, and JavaScript

```
public static void Main()
{
    if (DateTime.Now.DayOfWeek == DayOfWeek.Monday)
    {
        Console.WriteLine("Another case of the Mondays!");
    }
}
```

# csc.exe

- The C# command line compiler
  - Transforms C# code into Microsoft Intermediate Language



```
C:\>hello Scott Joy Sara
```



args[0] is "Scott"

args[1] is "Joy"

args[2] is "Sara"

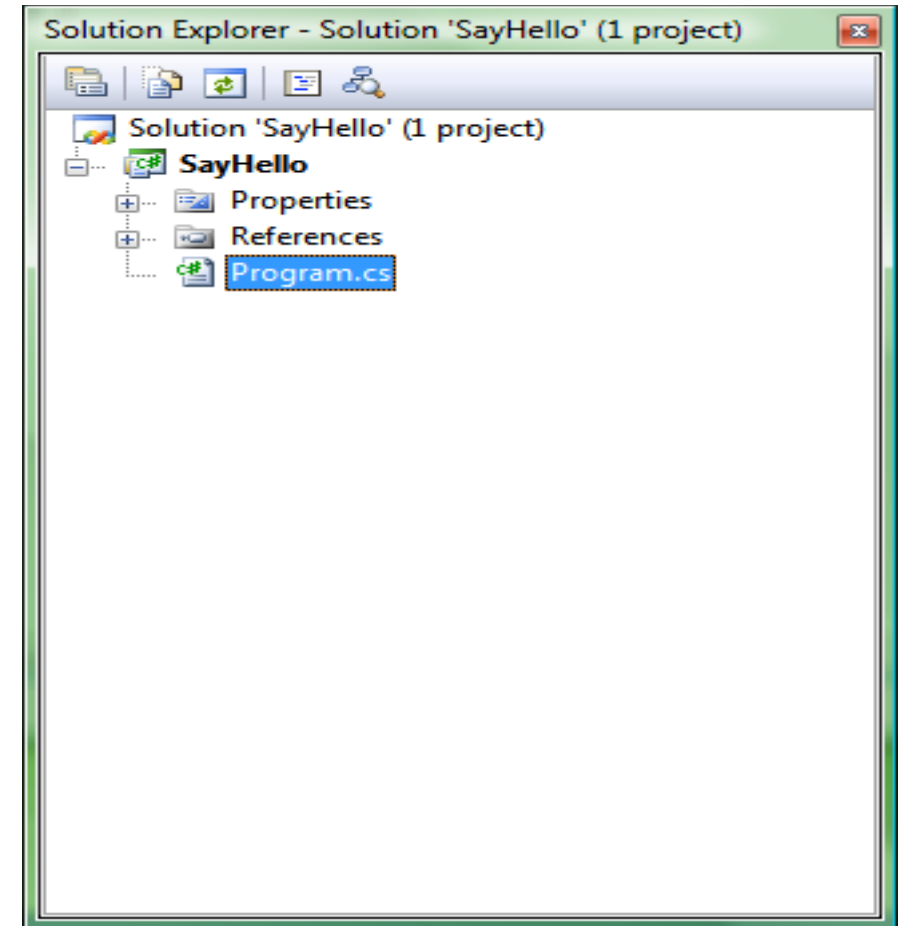
# Visual Studio

- **An integrated development environment**
  - Edit C# (and other) files
  - Runs the C# compiler
  - Debugging
  - Testing



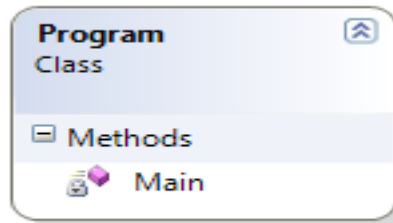
# Solution Explorer

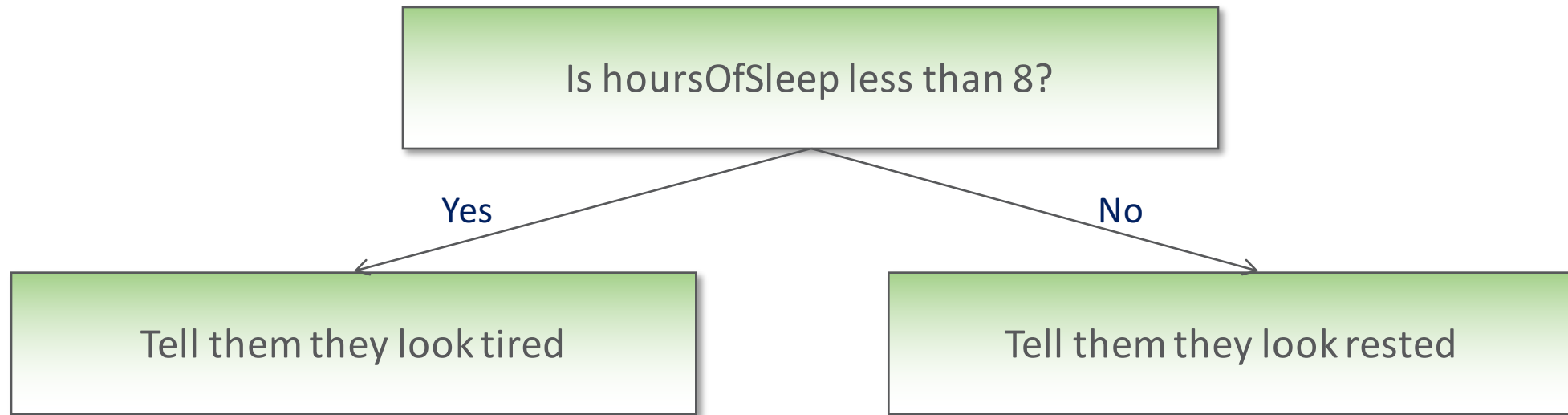
- **Will contain at least one project**
  - Contains one or more source code files
  - Each project produces an assembly
- **Projects organized under a solution**
  - Manage multiple applications or libraries



# Types

- **C# is strongly typed**
  - ❑ One way to define a type is to write a class
  - ❑ Every object you work with has a specific type
  - ❑ 1,000s of types are built into the .NET framework
  - ❑ You can define your own custom types
- **Code you want to execute must live inside a type**
  - ❑ You can place the code inside a method
  - ❑ We'll explore other things you can add to a type later ...





# Summary

- C# is a strongly typed & case sensitive language for .NET
- Visual Studio is an IDE to work with C# applications of all types

```
static void Main(string[] args)
{
    Console.WriteLine("Your name:");
    string name = Console.ReadLine();

    Console.WriteLine("How many hours of sleep did you get last night?");
    int hoursOfSleep = int.Parse(Console.ReadLine());

    Console.WriteLine("Hello, " + name);
    if(hoursOfSleep > 8)
    {
        Console.WriteLine("You are well rested");
    }
    else
    {
        Console.WriteLine("You need more sleep");
    }
}
```