C# Fundamentals with C# 5.0

Introduction to C#

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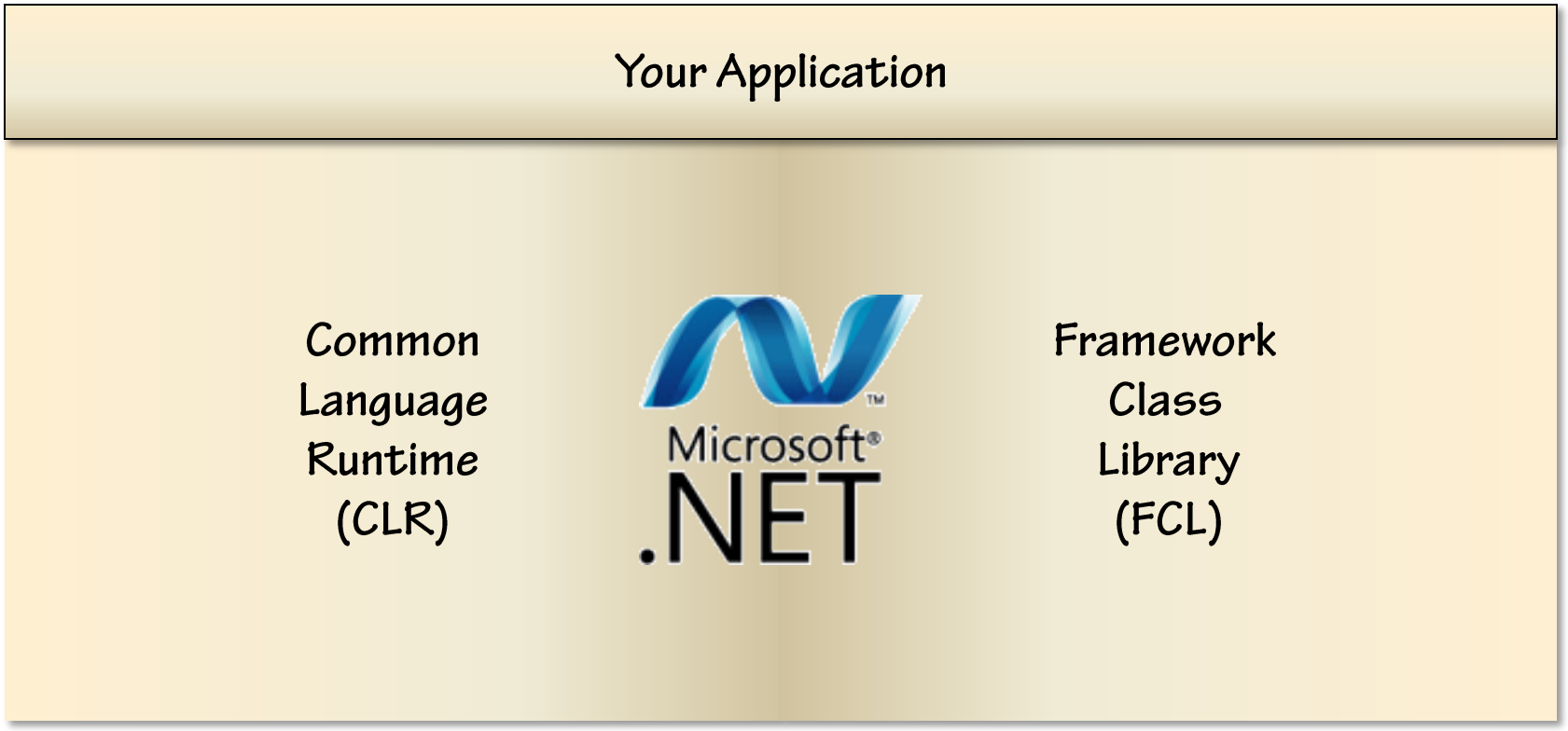
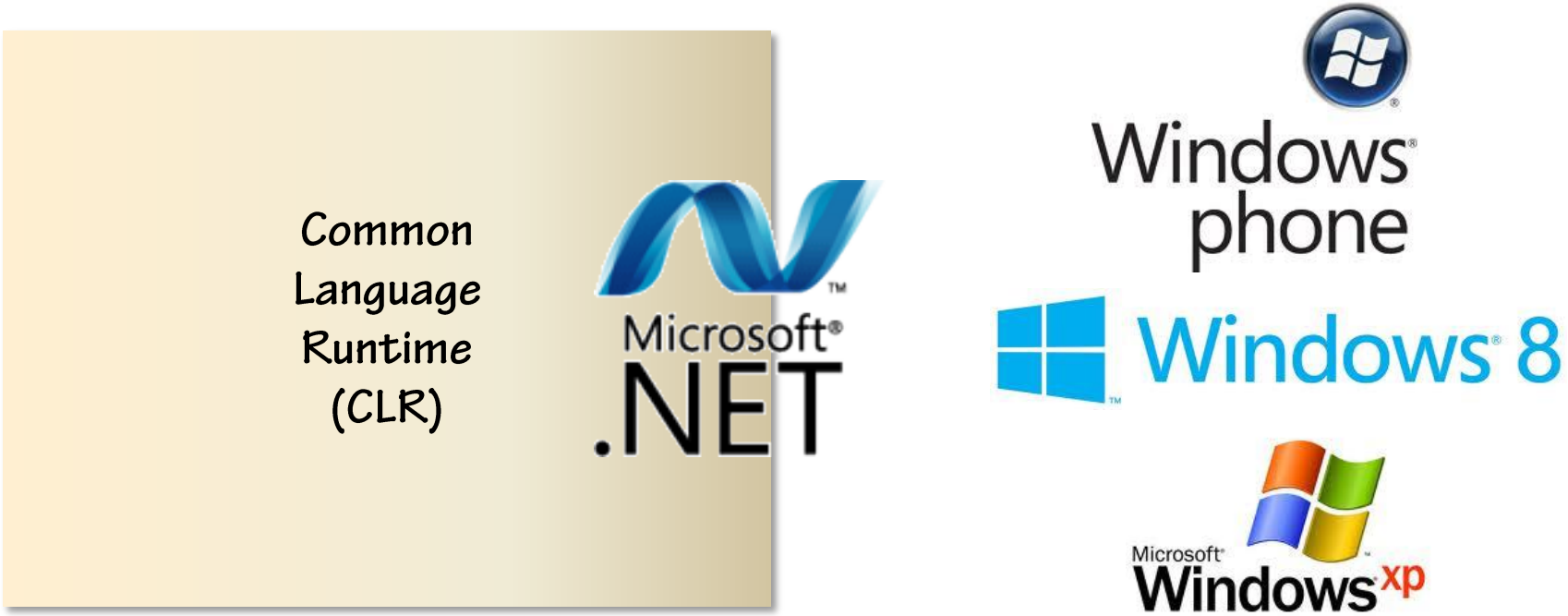
.NET

- A software framework



CLR

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



FCL

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

Microsoft® .NET

Framework Class Library (FCL)

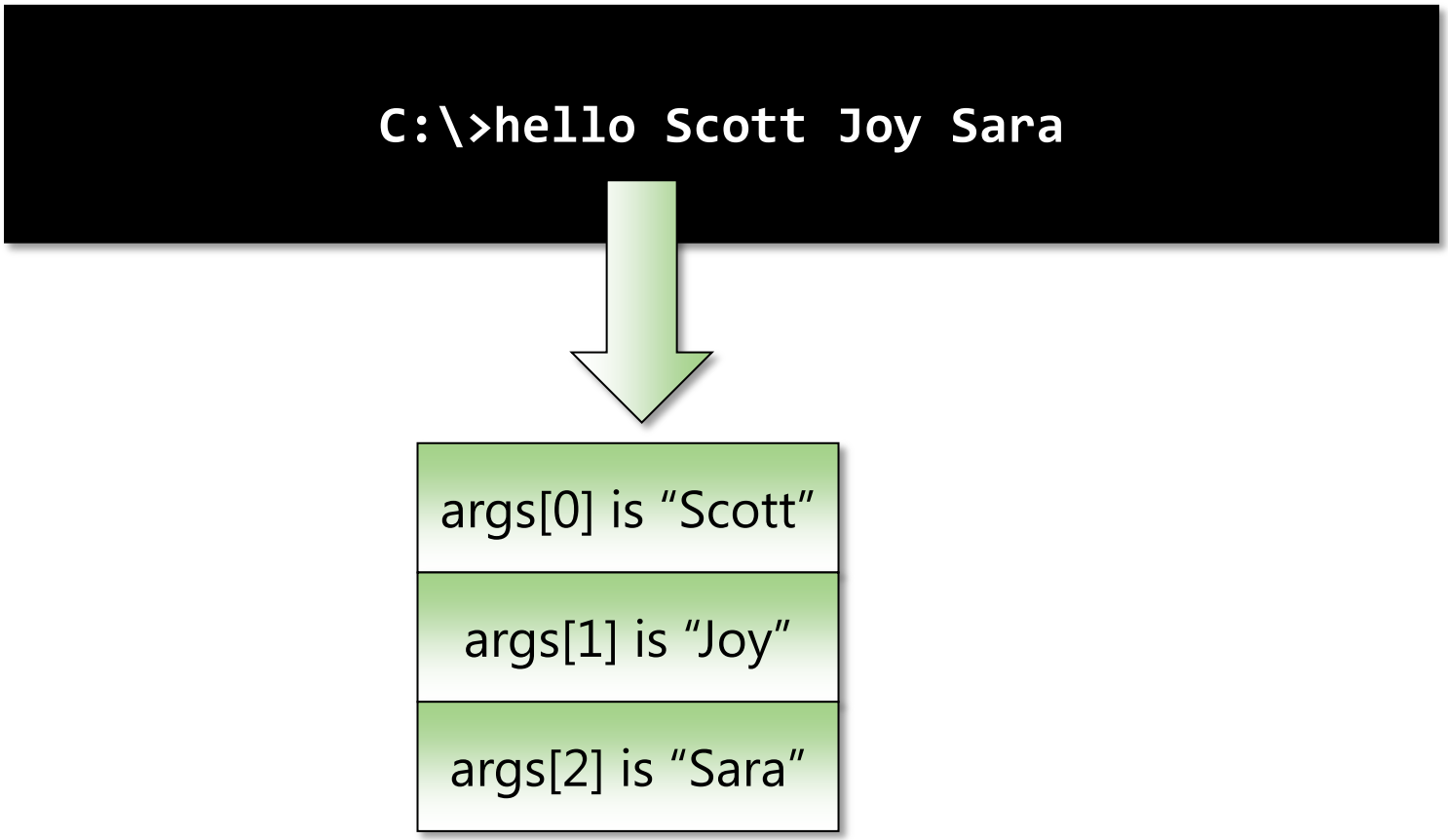
C#

- **One of the languages for .NET**
  - Create applications, services, and reusable libraries
  - 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

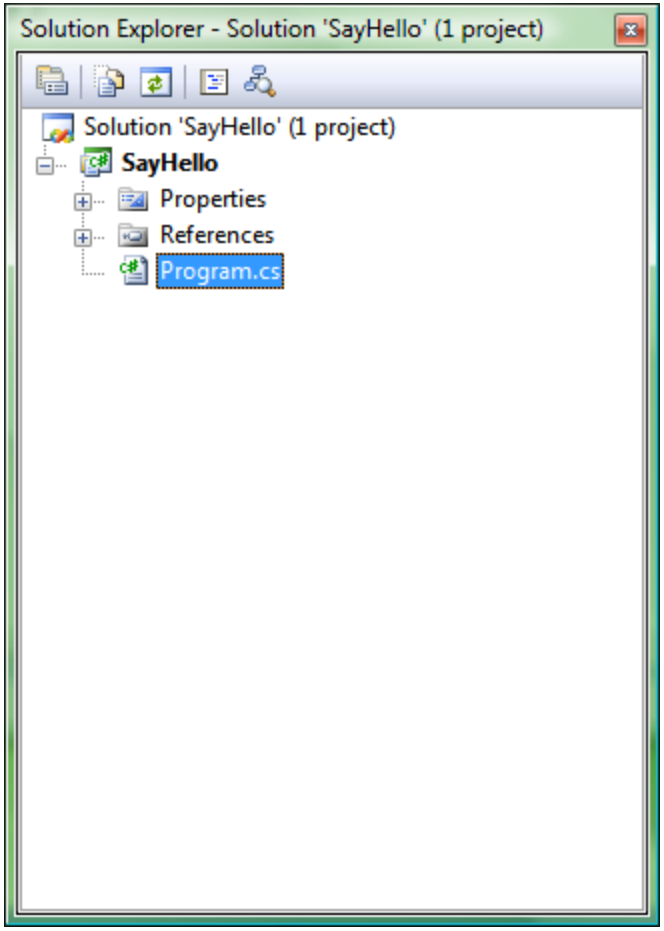

C:\>hello Scott Joy Sara
args[0] is “Scott”
args[1] is “Joy”
args[2] is “Sara”

Visual Studio

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

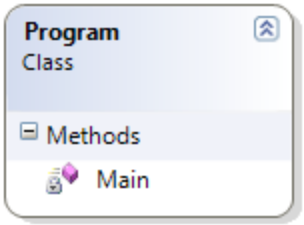
Solution Explorer

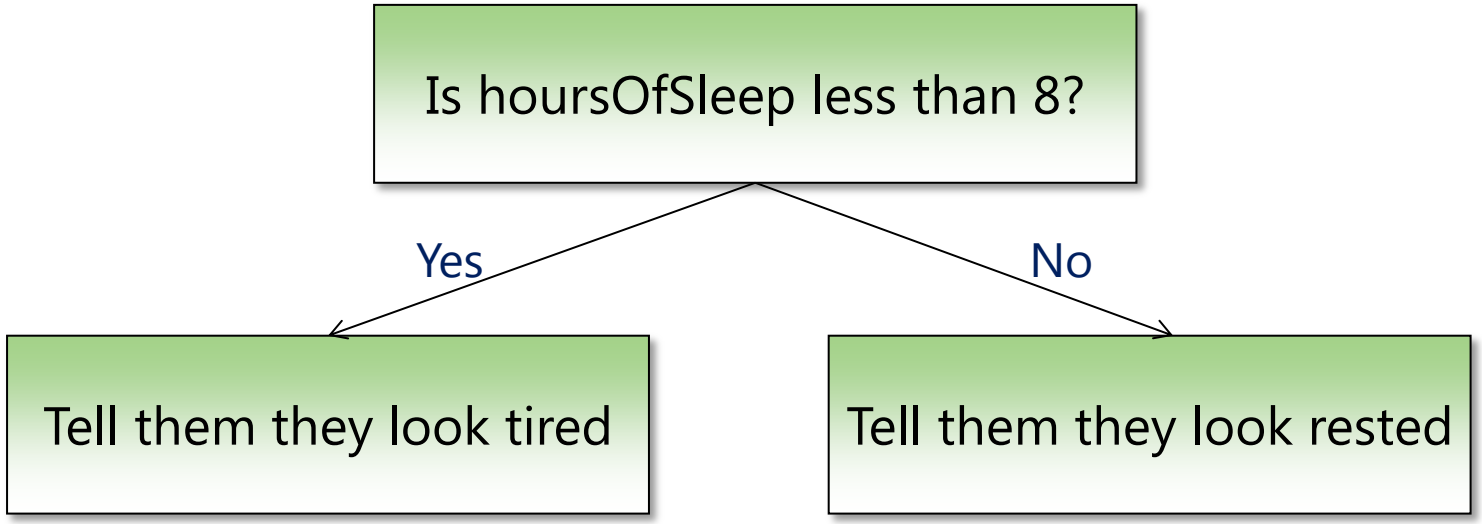
- **Will contain at least one project**
  - Contains one or more source code files
  - Each project produces an assembly
- **Projects organized under a solution**
  - Manage multiple applications or libraries



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 …




Is hoursOfSleep less than 8?
Yes
No
Tell them they look tired
Tell them they look rested

Summary

- **C# is one language for .NET**
  - Strongly typed & case sensitive
- **Visual Studio is an IDE**
  - Editor & debugger

```
class Program
{
    static void Main(string[] args)
    {
        Console.WriteLine("Please enter your name");
        string name = Console.ReadLine();

        Console.WriteLine("How much sleep did you have last night?");
        int hoursOfSleep = int.Parse(Console.ReadLine());

        Console.WriteLine("Hello, " + name);

        if (hoursOfSleep < 8)
        {
            Console.WriteLine("You must feel tired");
        }
        else
        {
            Console.WriteLine("You seem well rested");
        }
    }
}
```