Introduction To Visual Basic

Hello World!

pluralsight
see what you can learn

Course Overview

1. **Introduction to Visual Basic**
2. **Flow Control and Exceptions**
3. **Classes and Objects**
4. **Types and Assemblies**
5. **Inheritance and Interfaces**
6. **Collections**
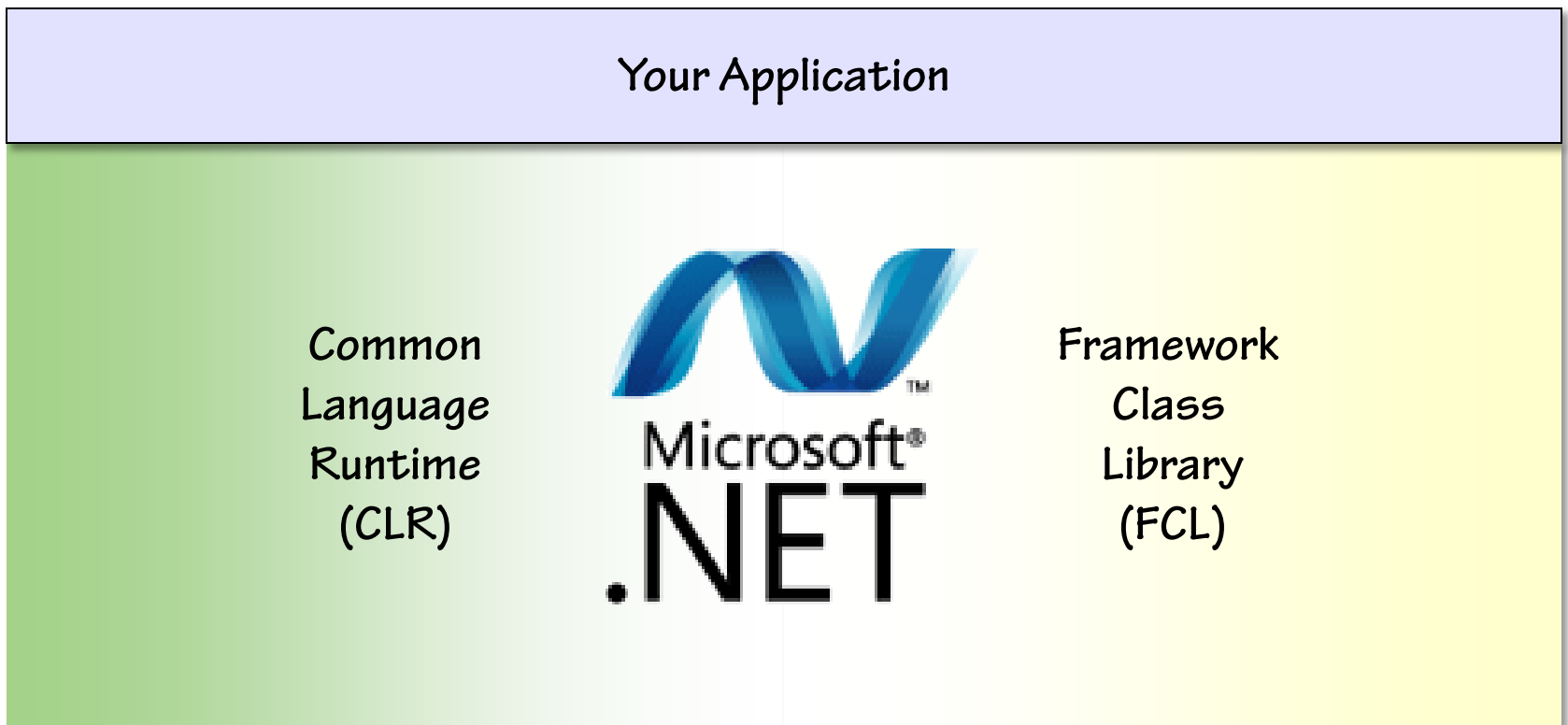7. **Visual Basic and the CLR**

Module Overview

- **What is .NET?**
- **What is the FCL?**
- **What is the CLR?**
- **What is Visual Basic?**
- **Basic statements and operators**
- **Types**
- **Creating programs with Visual Studio**

.NET

- **A software framework**
  - http://msdn.microsoft.com/en-us/netframework/default.aspx

Your Application

Common Language Runtime (CLR)

Framework Class Library (FCL)
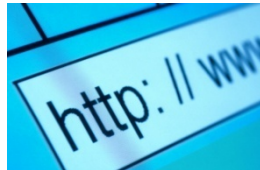
Common Language Runtime

- **The CLR manages your application when it runs**
  - Operating system and hardware independence
  - Language independence
  - Memory management
  - Security

Common Language Runtime (CLR)

Framework Class Library

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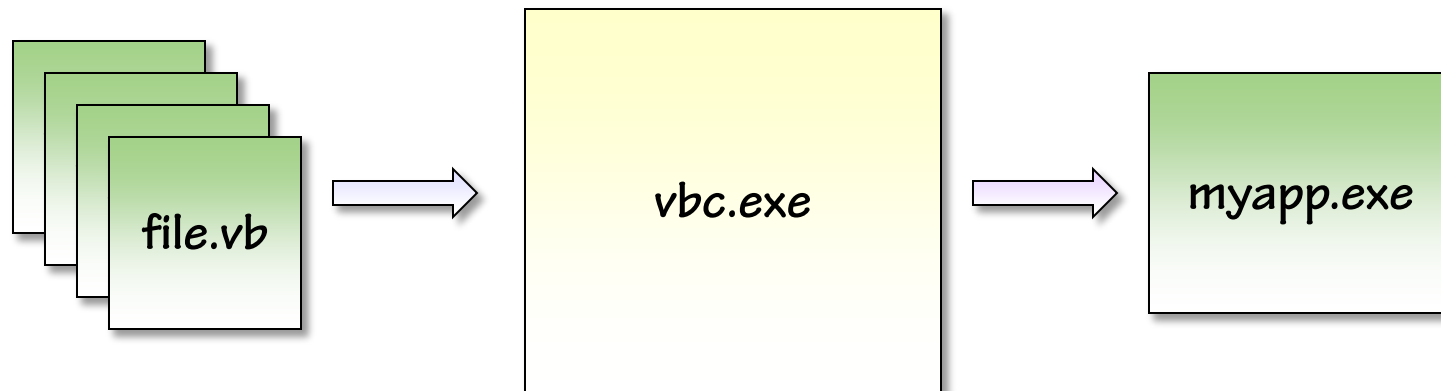

Framework
Class
Library
(FCL)

What is Visual Basic?

- **A language to create .NET components**
  - An evolution of "classic" Visual Basic
  - Create applications, services, and reusable libraries

```
Sub Main()
    Console.WriteLine("Hello, World!")
End Sub
```
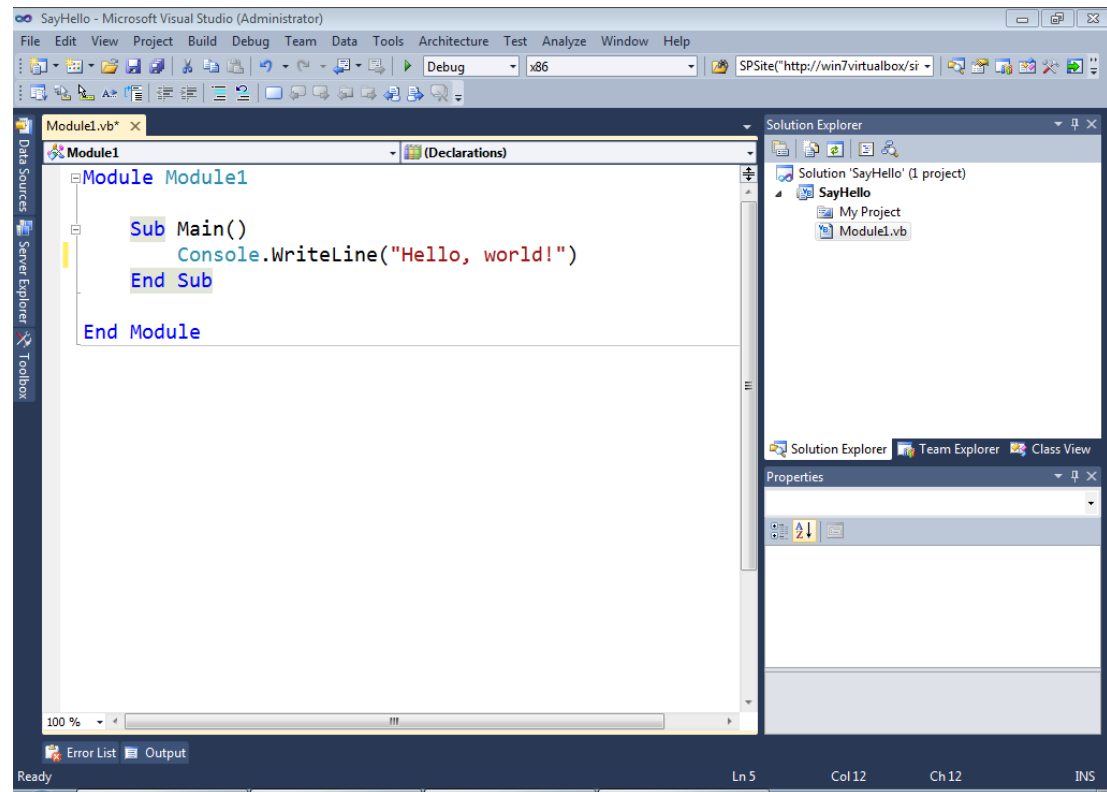
vbc.exe

- **The Visual Basic command line compiler**
  - Transforms VB code into Microsoft Intermediate Language
  - Produces an assembly (.dll, .exe)

Visual Studio

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

Variables

- **Variables hold a value**
  - Use the Dim keyword to create a variable
  - Variables always have a type
  - Can optionally assign a value at declaration

```
Sub Main()
    Dim answer As Integer = 42
    Dim name As String = "Rob"
    Dim pi As Long
    pie = 3.14
End Sub
```

Type Inference

- **Visual Basic can infer type of variable from their value**
  - Must assign at value at declaration for inference to work

```
Sub Main()
    Dim answer = 42
    Dim name = "Rob"
    Dim pi = 3.14
End Sub
```

Primitive Types

FCL Name	VB Name	Description
Int32	Integer	32 bit integer
Int64	Long	64 bit integer
Boolean	Boolean	True or False
Single	Single	Single precision floating point
Double	Double	Double precision floating point
Decimal	Decimal	Fixed precision (financial)
DateTime	Date	An instant in time (to 100 ns)
String	String	Text (as Unicode characters)

Statements

- **A statement is a line of code**
  - Statements end at the end of a line
  - Long statements can be divided using the underscore character

```
Dim x As Integer = 5
Dim y As Integer = 10
Dim answer As Integer = _
    x + y
```

Operators

- **Specify an operation to perform on one or more variables**
  - Mathematical operators (+ , - , * , /, \, Mod)
  - Relational operators (< , > , <= , >=)
  - Equality operators (=, <>)
  - Conditional operators (And, Or, AndAlso, OrElse)
  - Assignment operators (=, +=, -=, *=, /=)
  - String concatenation (&)

```
Dim x As Integer = 5
Dim y As Integer = 10
If x <> y Then
    x += 1
Else
    y += x
End If
```

Arrays

- A variable that can hold multiple values of the same type
- Index of first item is 0
- Can have multi-dimensional arrays

```
Dim suits(3) As String
months(0) = "Clubs"
months(1) = "Diamonds"
months(2) = "Hearts"
months(3) = "Spades"

Dim numbers() As Integer = {40, 50, 60, 70}

Dim grid = {{1, 2}, {3, 4}}
```

Enumerations

- **An Enum creates a type**
    - A set of named constants
    - A numeric value is associated with each constant

```
Public Enum Suit
    Clubs = 1
    Diamonds
    Hearts
    Spades
End Enum
```

```
If card.Suit = Suit.Hearts Then

End If
```

Summary

- **Visual Basic creates programs that run on top of the CLR**
    - Based on Classic Visual Basic
    - Statements and expressions
    - Types
    - Operators
    - Visual Studio