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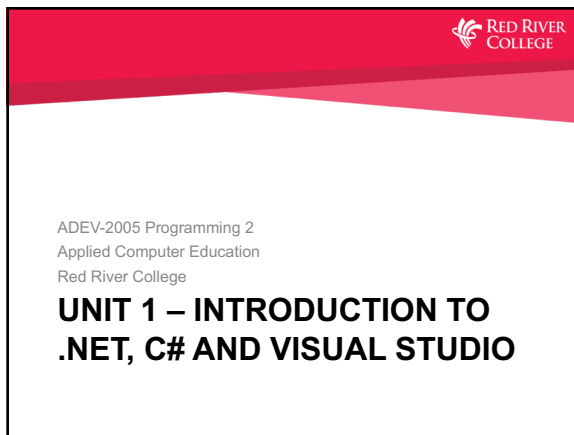
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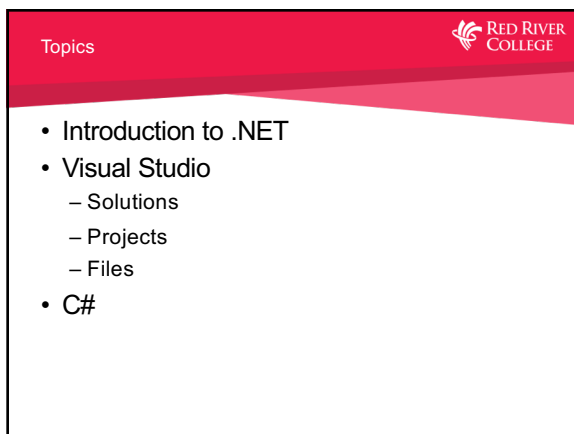
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.NET Framework

RED RIVER  
COLLEGE

- An environment to run applications
  - Between OS and apps
- An **extensible** framework (2,500+ classes)
- Allows for rapid development
- Web and desktop applications

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Multi-language Support

RED RIVER  
COLLEGE

- C#
- C++
- Visual Basic

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Common Intermediate Language

RED RIVER  
COLLEGE

- Source code compiles to CIL (bytecode)
- Assembly
  - .exe (Executable)
  - .dll (Library)

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Common Language Runtime

RED RIVER COLLEGE

- VM of the .NET framework
- Manages execution of .NET programs
- Converts compiled code (CIL) to machine instructions as needed
  - via a process called Just-in-time compilation

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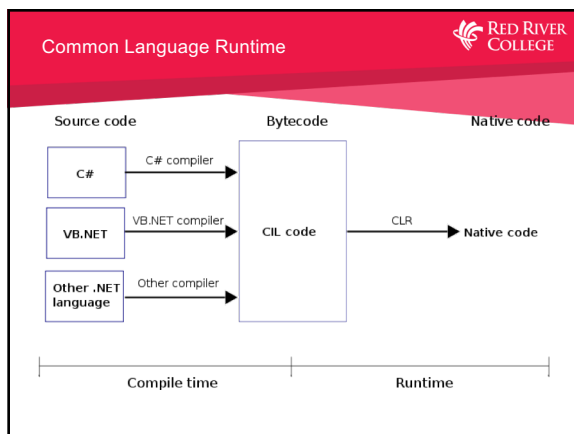
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C# (C Sharp)

RED RIVER COLLEGE

- OOP Language
- Influenced by C++, Java, etc.
- Syntax is C based (like Java)
- Designed to generate code for .NET

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Code Sample

RED RIVER COLLEGE

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace IntroductionToDotNet
{
    class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Hello World");

            Console.Write("Press any key to continue...");
            Console.ReadKey();
        }
    }
}
```

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Visual Studio

RED RIVER COLLEGE

- Integrated Development Environment (IDE)
  - Syntax Highlighting
  - Debugger
  - Code Sensing
  - Visual Modeling

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Visual Studio Solution

RED RIVER COLLEGE

- Organizational unit
- Contains 1 or more projects
- Represented by a directory

```
graph TD
    Solution[Solution] --- Project1[Project]
    Solution --- Project2[Project]
    Solution --- Project3[Project]
```

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**Visual Studio Project**

• Organization unit for a set of code files and resources

• Represented by a directory

```

graph TD
    Project[Project] --> bin[bin]
    Project --> csproj[.csproj]
    Project --> cs1[.cs]
    Project --> cs2[.cs]
    bin --> Debug[Debug]
    Debug --> exe[.exe]
    Debug --> dll[.dll]
  
```

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**Project Types**

- **Console Application**
  - Application runs in console
  - Assembly: .exe
- **Class Library**
  - Contains classes and other types; no program
  - Assembly: .dll
- **Windows Form Application**
  - Application runs as Windows Form (GUI)
  - Assembly: .exe

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**Visual Studio Startup**

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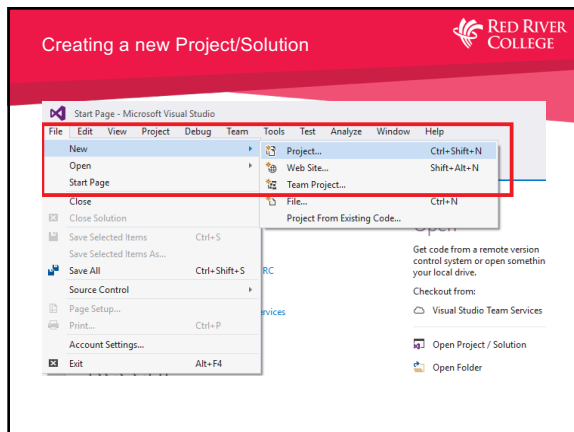
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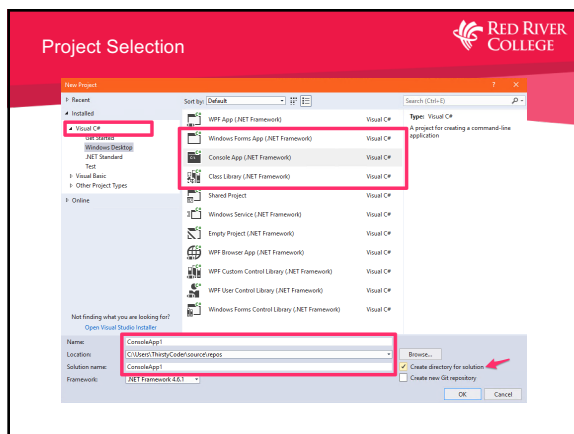
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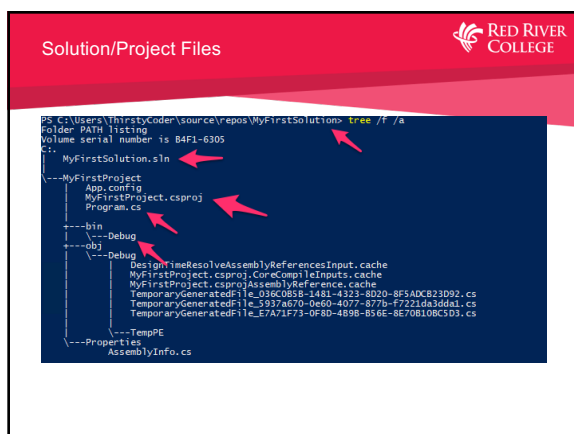
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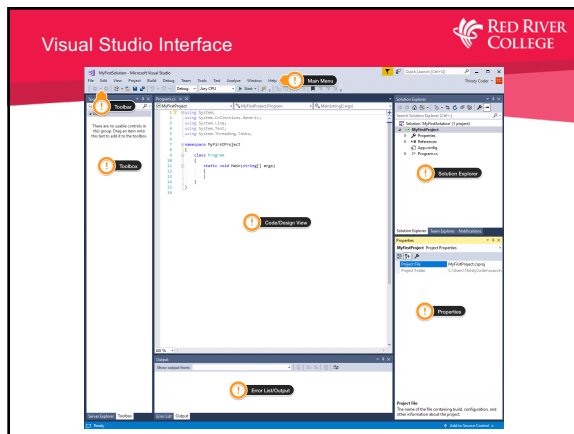
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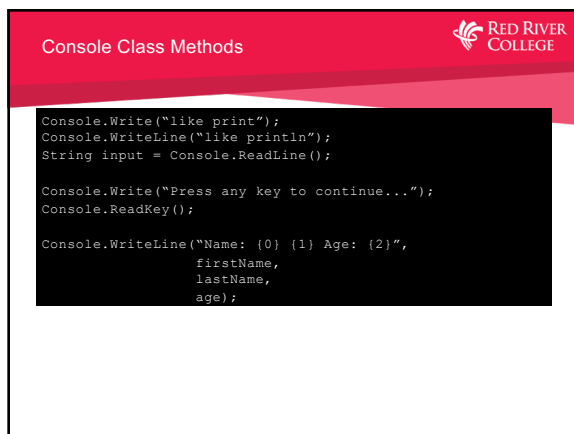
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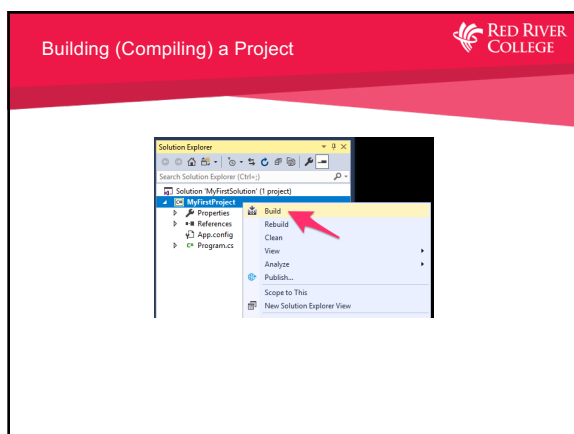
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Summary



- Source Code > CIL > CLR > Machine code
- .NET = Multi Language Framework
- C# = Powerful OOP Language
- Visual Studio = IDE
- Solutions < Projects < Code Files

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