



.NET Visual Studio Solution

.NET

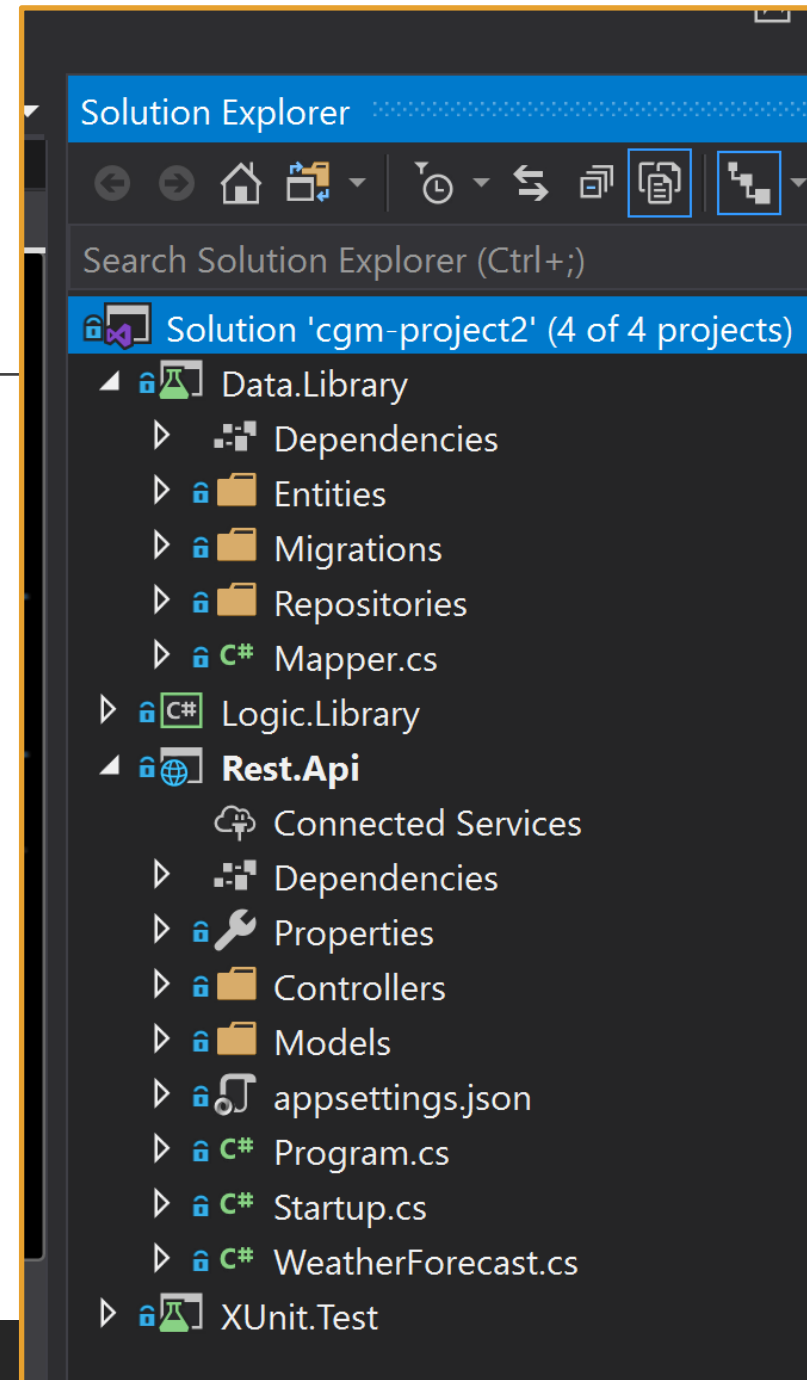
*.NET **projects** are contained within a **solution**. A **solution** is a container for one or more related **projects**.*

.NET Solution

<https://docs.microsoft.com/en-us/visualstudio/ide/solutions-and-projects-in-visual-studio?view=vs-2019#solutions>

A ***Solution*** is a container for one or more related projects along with their build information, Visual Studio window settings, and any miscellaneous files that aren't associated with one particular project.

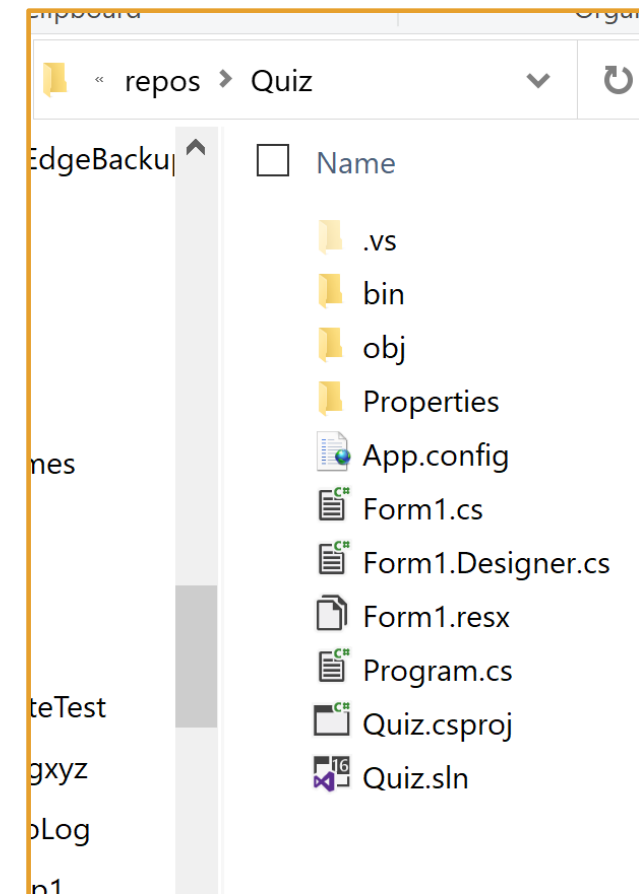
A ***solution*** is described by a text file (extension **.sln**) in XML format. It is not intended to be edited by hand.



.NET Solution - Projects

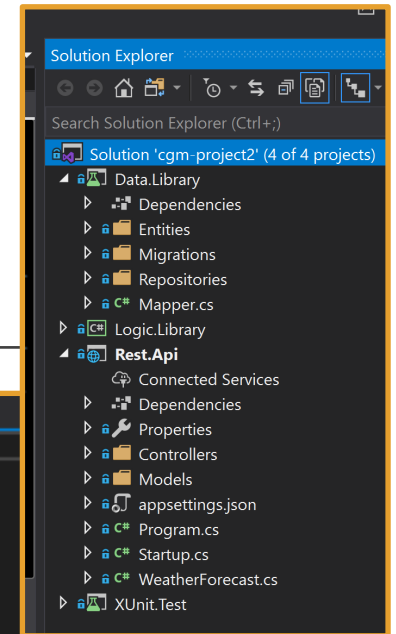
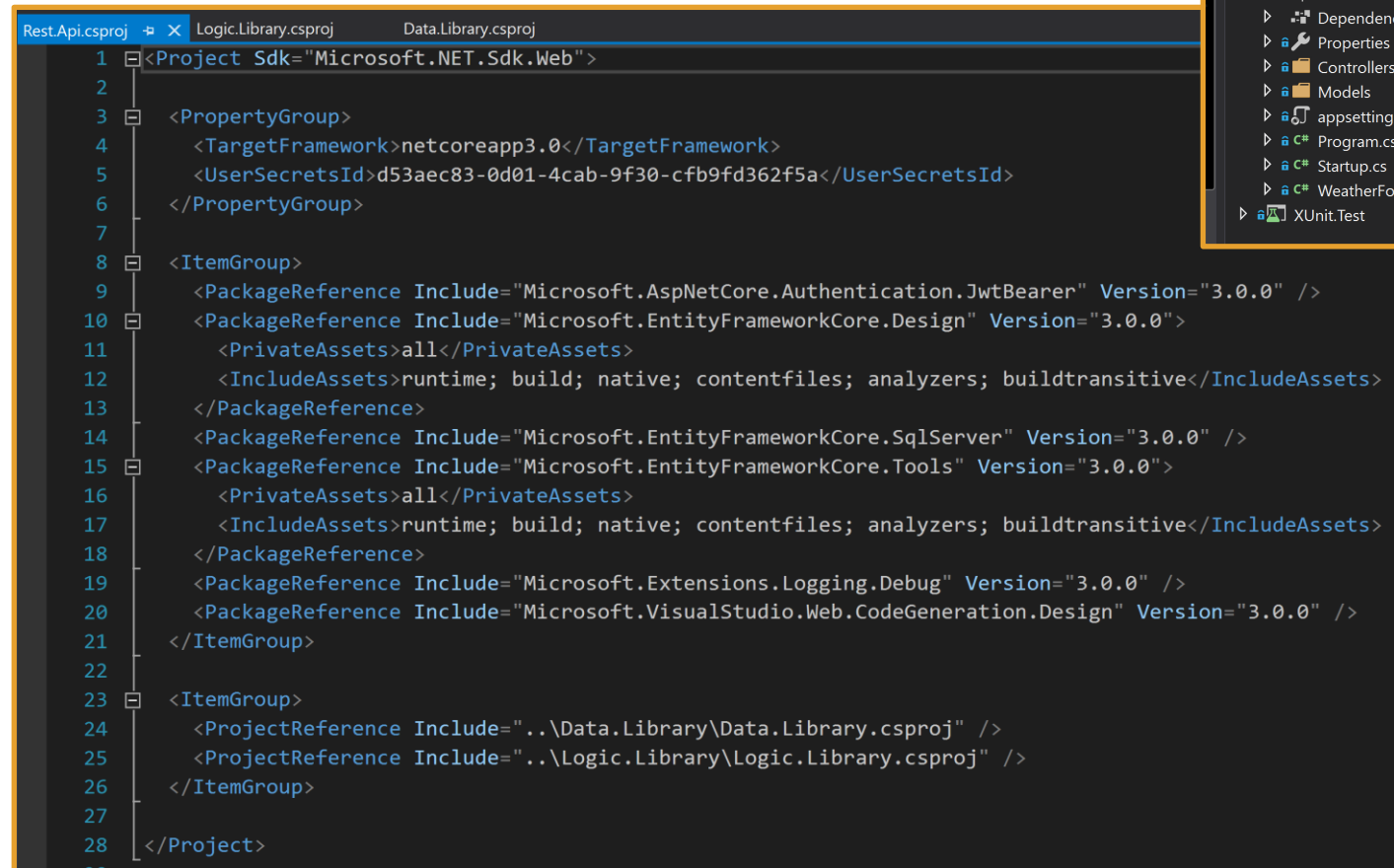
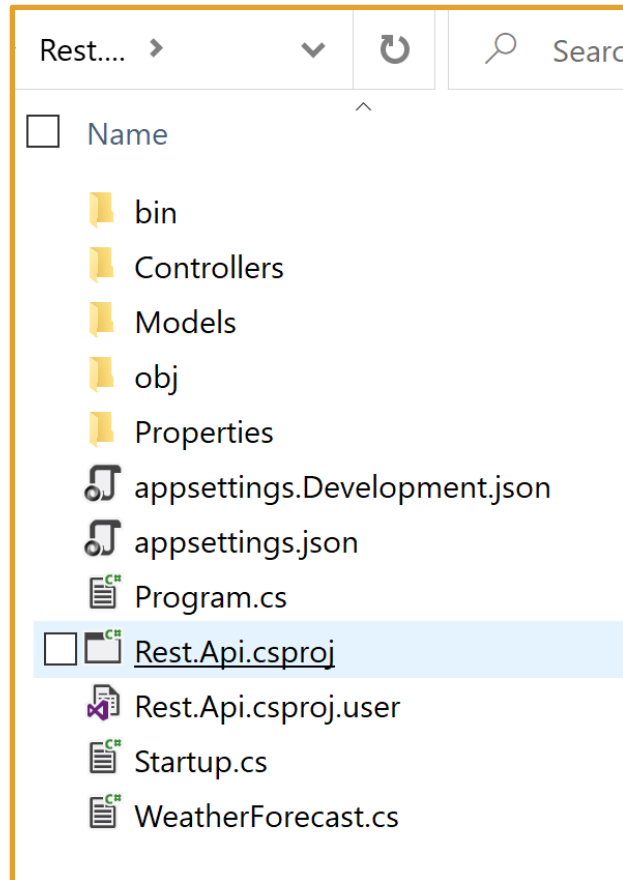
<https://docs.microsoft.com/en-us/visualstudio/ide/solutions-and-projects-in-visual-studio?view=vs-2019>
<https://docs.microsoft.com/en-us/dotnet/csharp/tour-of-csharp/program-structure>

- An app in Visual Studio starts with a project. A project contains all files that, when compiled, are placed into an executable (.exe) or a library (.dll).
- Files can include source code, icons, images, data files, etc.
- A project contains compiler settings and other configuration files that might be needed by various services or components.
- Visual Studio uses **MSBuild** to build each project in a solution, and each project contains an **MSBuild** project file.
- The file extension for a C# project is .csproj.
- The project file is an **XML** document that contains all the information and instructions that **MSBuild** needs in order to build a project including the content, platform requirements, versioning information, web server or database server settings, and the tasks to perform.



.NET Solution - Projects

<https://docs.microsoft.com/en-us/visualstudio/ide/solutions-and-projects-in-visual-studio?view=vs-2019>
<https://docs.microsoft.com/en-us/dotnet/csharp/tour-of-csharp/program-structure>



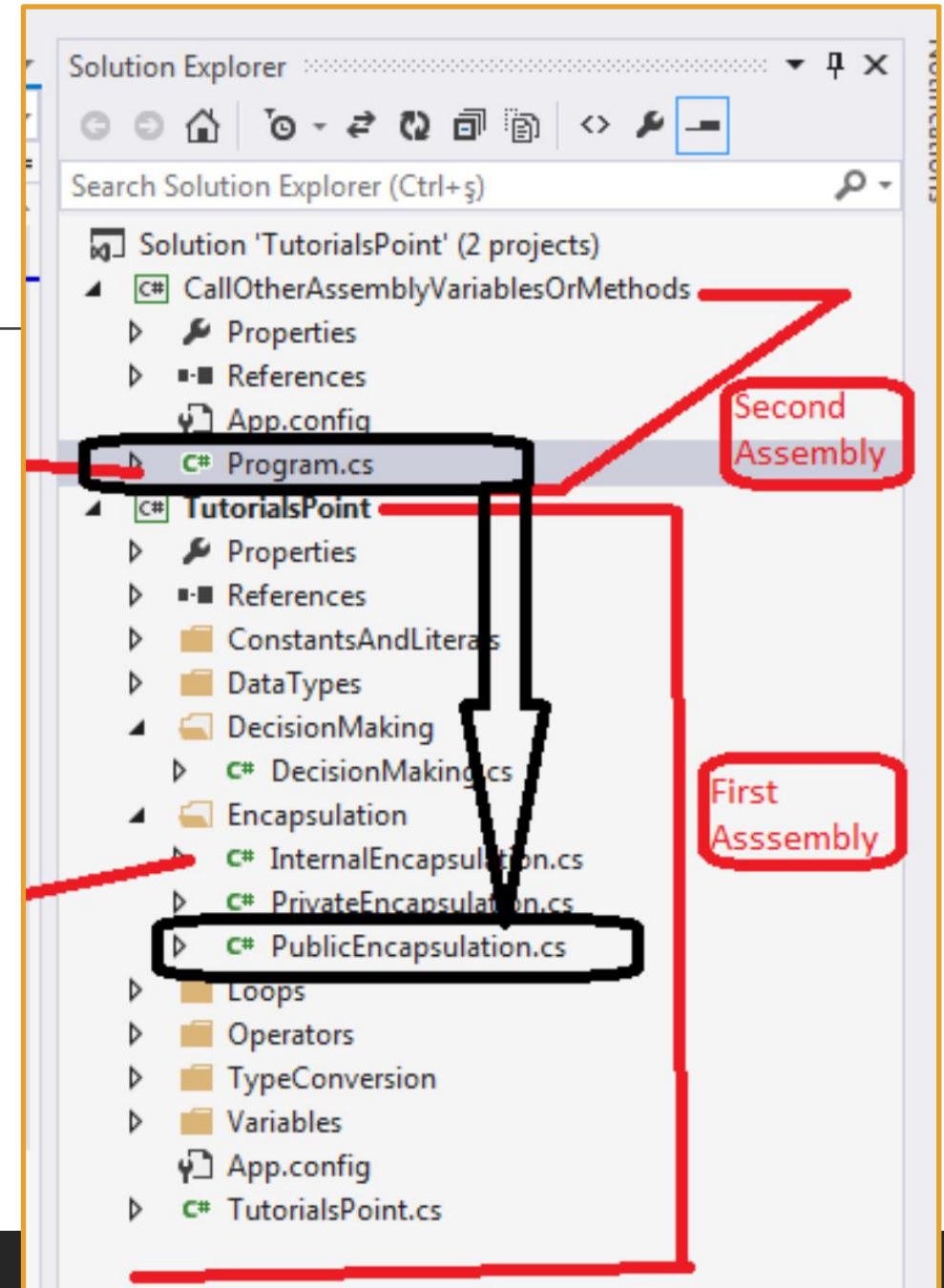
.NET Solution - Assembly

<https://docs.microsoft.com/en-us/dotnet/standard/assembly/>

Assemblies:

- form the fundamental units of deployment, version control, reuse, activation scoping, and security permissions for **.NET**-based applications.
- are a collection of types and resources that work together and form a logical unit of functionality.
- take the form of **executable (.exe)** or **dynamic link library (.dll)** files.
- provide the **Common Language Runtime** with the information it needs to be aware of **type** implementations.

In **.NET Core** and **.NET Framework**, you can build an assembly from one or more source code files. Each Projects files are compiled (combined) into one big .dll file called an **Assembly**.



.NET Solution - Assembly

<https://docs.microsoft.com/en-us/dotnet/standard/assembly/>

An **assembly** is:

- Code that the CLR executes. Each **assembly** can have only one entry point (Main).
- Security boundary. An **assembly** is the unit at which permissions are requested and granted.
- Version boundary. The assembly is the smallest versionable unit in the CLR. All types and resources in the same **assembly** are versioned as a unit.
- Deployment unit. When an application starts, only the **assemblies** that the application initially calls must be present. Other **assemblies** are retrieved on demand. This is called Just-In-Time (JIT) compiling.

