[0150] .NET Assemblies and Namespaces

Overview of .NET Assemblies

When you build a .NET program, your IDE takes your source files and creates a .NET assembly file from them.

- .NET Assemblies are EXE and DLL files containing
  - Common Intermediate Language (CIL) bytecode
  - Type metadata
  - A manifest with program metadata
- Type Metadata enables development and inter=operability tools to work effectively
- The Manifest contains:
  - All external assemblies needed
  - Version number
  - Copyright info, etc.

The Assembly/Namespace/Type Distinction

- C# uses the language neutral .NET framework libraries
- Namespaces keep shared library classes separated and organized
- Some Important Namespaces:
  - System - pretty much everything that comes with C#
  - System.Collections - very useful data structures
  - System.Data - database access
  - System.Environment - the run-time environment of your program
  - System.IO - access to the file system
  - System.Windows - the WPF stuff
  - System.Linq - the LINQ query methods
  - System.Web - Web/Internet access methods (ASP.NET)
  - System.Threading - for multi-threaded programming
  - System.Xml - for reading XML data

    - Microsoft - Windows-specific APIs that are not portable to other platforms

- Use "using" in C# to access a Namespace programmatically
    - Allows you to just type the library's class' name in your code