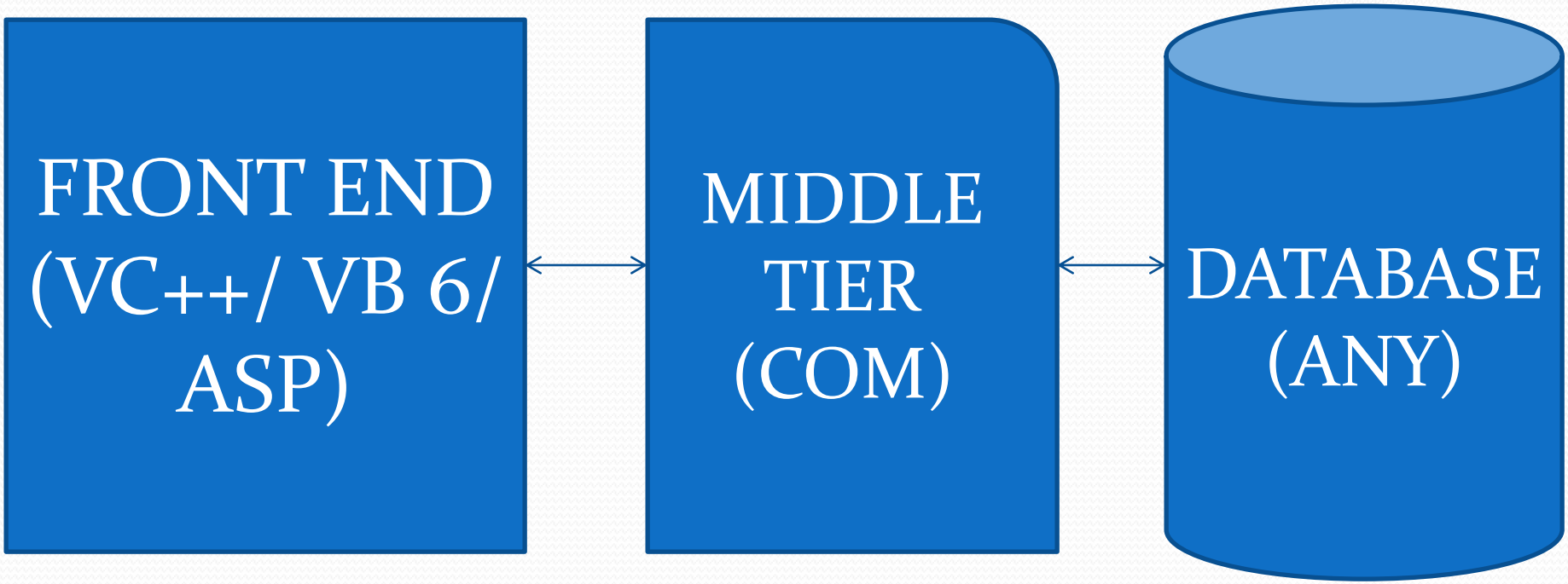
Introduction to .Net Framework

Before .Net (Microsoft)



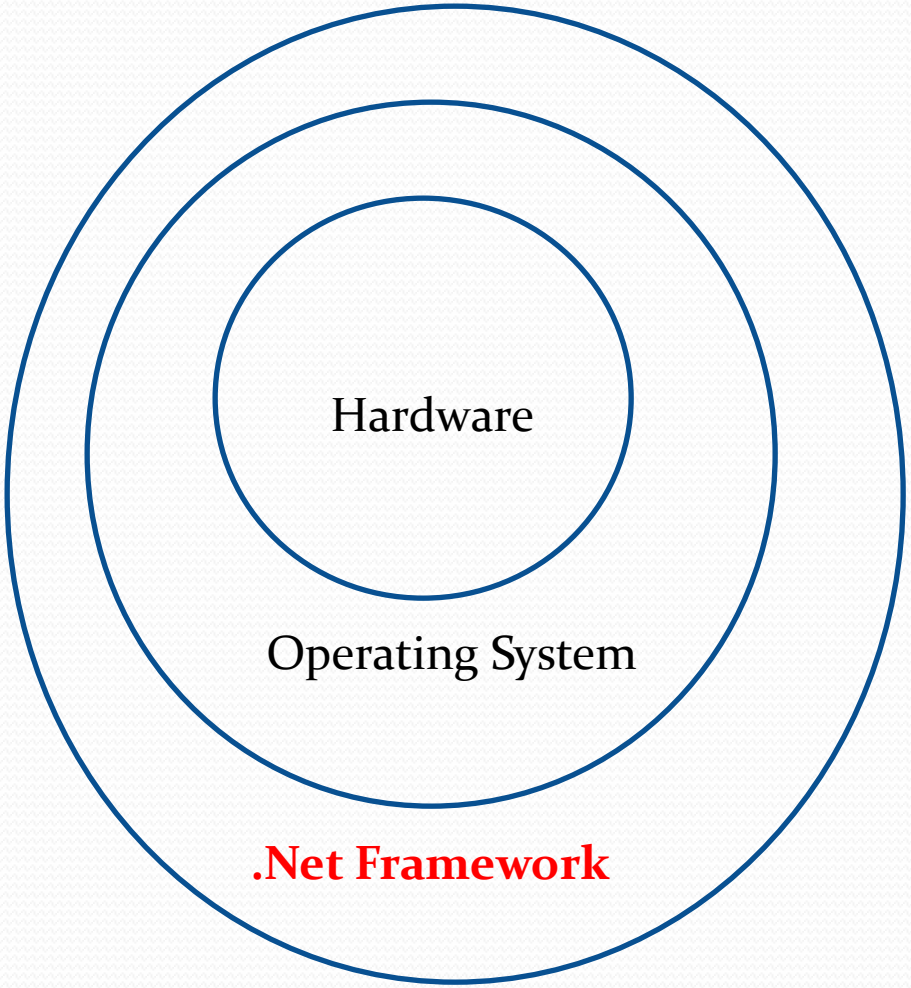
Problems (Pre .Net)

- VC++ -> Had OO and threading but Complex
- VB6 -> Not OO and no threading but Simple
- ASP -> Script based, Interpreted, Late Bound, Difficult to maintain and debug, not OO
- COM -> DLL HELL! (Mainly versioning and deployment)

.Net Features

- OO Code
- Multiple Languages
- Multiple platforms*
- Multiple project types(eg web based, desktop based, etc)
- Better Security
- Improved Performance

.Net framework



SOURCE CODE
(Any .Net Language)
Eg, C#,Vb.Net

COMPILE

ASSEMBLY
(EXE/DLL)

BYTE CODE
MSIL/CIL/IL

Web Application, Windows Forms, Console Apps, Web Services, WCF, WPF, Workflow, ASP.Net MVC, .Net Core, Xamarin, Windows Services, Web API

.Net Base Class Library
System.Dll, System.Data.Dll, System.Xml.Dll etc

Common Language Runtime(CLR)

- JIT Compilation
- Memory Management
- Garbage Collection
- App Domain Management
- Common Language Specification
- Common Type System
- Thread Management
- Security Management
- Debugging
- Exception Handling

App Domains


Application
PROCESS
Application
PROCESS
Application
Application
PROCESS


Application
App Domain
PROCESS
Application
Application
PROCESS

So what is the .Net Framework???

And what would you need to run your code on other platforms???

What is the difference between .Net Framework and VS.Net?

Difference between .Net Framework, .Net Core, Mono and Xamarin

- .Net Framework used for Windows platform mainly
- Mono used for Linux
- Xamarin used for Mobile platforms(Android, iOS and Windows)
- .Net Core used for all platforms

.Net Core Key Features

- Open-source
- Cross-platform
- Lightweight
- Extensible

.Net Core

- Upto Version 2.2 only supports ASP.NET MVC and Web Apis
- Version 3+ supports Winforms and WPF also
- Course covers version 5 (.Net 5)
- .Net 6 released in Nov 2021

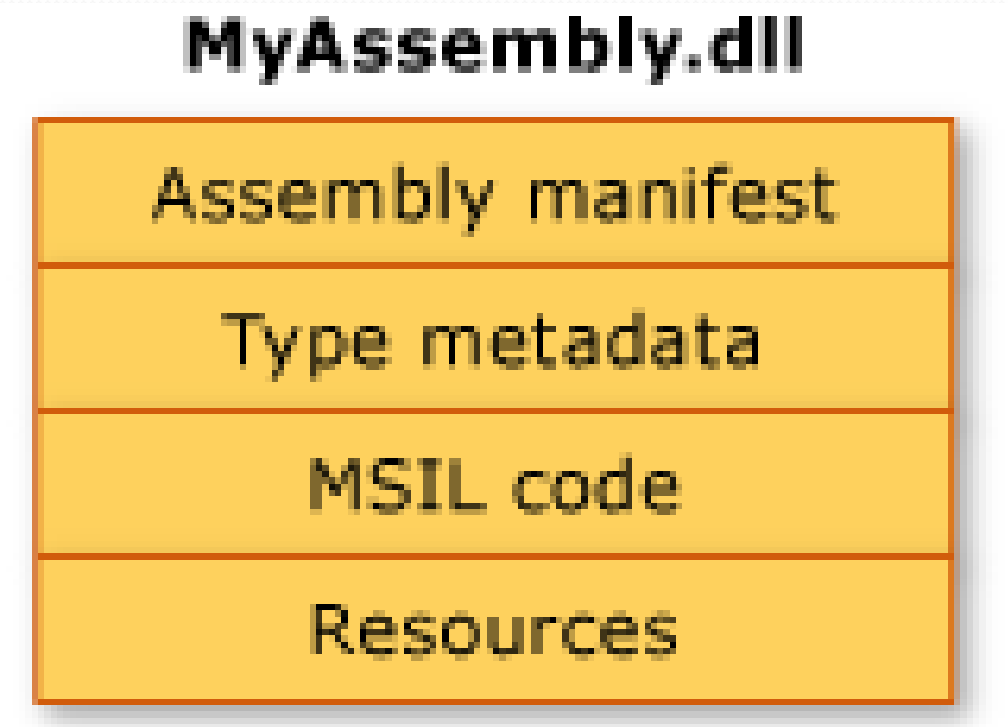
What will we be working with

- Visual Studio 2019 Community Edition- .Net framework 4.7
- C#
- Console Apps/Class Library
- Asp.Net MVC
- Web Services
- WCF
- Web Api
- .Net Core Intro

Managed vs Unmanaged code

- Managed code is run by CLR (All .net code)
- Unmanaged code is not run by CLR
  - Egs Windows DLLs (PInvoke) and COM Apps (using COM Interop)

Assembly Structure



Assembly Manifest

Contains…

- Assembly Name
- Version Number
- Culture
- Strong Name
- List of files contained
- References
- Type Reference information

Can’t wait to start coding ☺