

FUNDAMENTALS OF PROGRAMMING WITH C#

INTRODUCTION TO C#

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Total: 13

Objectives

- Understand .NET
- Understand different components of .NET
- Understand the relationship between .NET and C#

Agenda

- Introduction to .NET
- Introduction to C#

What is .NET?

- .NET is a Developer platform
 - It is a platform for developing applications
 - It is not a programming language
 - Developer Platform = **Languages + Libraries + CLR**
- Developed by Microsoft
 - Free and open source
- Developing various kinds of Applications
 - Cloud apps
 - Cross-platform apps
 - Windows apps
 - Etc.

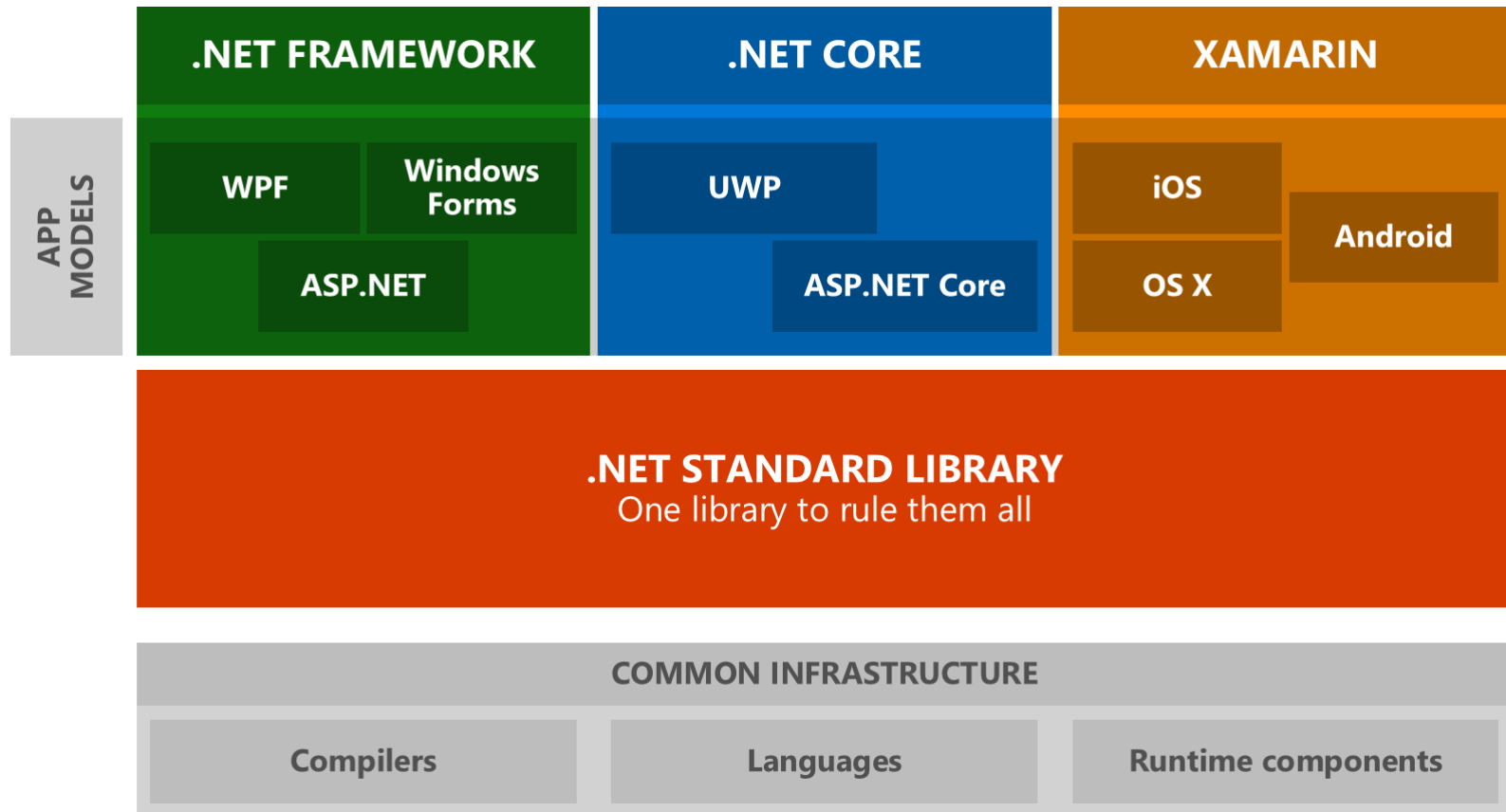
<https://docs.microsoft.com/en-us/dotnet/core/introduction>

Different Implementation of .NET

- .NET Framework
 - Used to build application that runs on Windows desktop and servers
 - Used to be the only choice
- .NET Core
 - A flavour of .NET Framework that is cross-platform and can run on Windows, Linux and macOS
 - Contains less class libraries than .NET Framework, the standard set of class libraries for .NET Core is called as .NET Standard
- .Xamarin/Mono
 - Open source mobile app platform

<https://msdn.microsoft.com/en-us/magazine/mt842506.aspx>

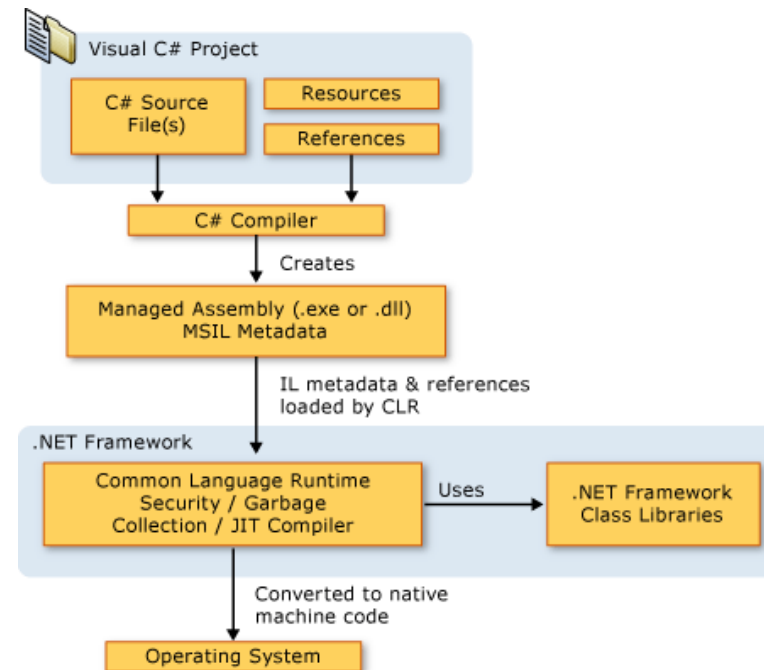
.NET Standard



<https://blogs.msdn.microsoft.com/dotnet/2016/09/26/introducing-net-standard/>

.NET Framework

- .NET Framework includes 2 things:
 - A virtual execution system called **CLR** (common language runtime) that can run CLI code (common language infrastructure)
 - Unified set of **class libraries**



C# vs .NET

- C# is a programming language
- .NET is a framework for building applications on windows
 - There are other language can build applications on top of .NET. Such as F#, VB.NET

What is C#

- C# is an elegant and type-safe object-oriented language that enables developers to build a variety of secure and robust applications that run on the .NET Framework.
- You can use C# to create Windows client applications, XML Web services, distributed components, client-server applications, database applications, and much, much more.
- Visual C# provides an advanced code editor, convenient user interface designers, integrated debugger, and many other tools to make it easier to develop applications based on the C# language and the .NET Framework.

<https://docs.microsoft.com/en-us/dotnet/csharp/getting-started/introduction-to-the-csharp-language-and-the-net-framework>

What is C#

- Type safe
 - The programming language is designed to prevent type error such as assigning number value to a date variable
- Object-oriented language
 - This will be covered in more detail in the next module
 - Object-oriented programming:
 - Programming paradigm based on the concepts of objects and classes

C# Characteristics to note

- C# is truly object oriented
 - We need to create at least one class when writing a program
- C# is case sensitive
 - Mind your case/capitalization
 - TomAndJerry, tomandjerry, TOMANDJERRY, tomANDjerry are considered different

Summary

- We have covered the introduction of .NET and C# programming language
- We have introduced common used C# terminologies

- C# Language Reference
 - <https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/>
- C# Programming Guide
 - <https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/>
- .NET API Browser
 - <https://docs.microsoft.com/en-gb/dotnet/api/?view=netframework-4.7.1>
 - Reference to find out the methods that can be used in .NET class libraries