

C# / .NET

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Proč .NET

- C# + Visual Studio = produktivní prostředí
- Velká komunita (hledání)
- Aktivně vyvíjený, moderní trendy
- Multiplatformní
- Rychlý
- <https://dot.net>
- <https://docs.microsoft.com>

Kde hledat pomoc

- Vše se vyvíjí, syntaxe se mění
- [STACKOVERFLOW](#)
- [DOCS.MICROSOFT.COM](#) – ASP.NET CORE



General purpose
(desktop, mobile, web, game)



Approachable
(to C++ & Java developers)



Strongly typed
(with compiler inference)



Open source & cross-platform
(using .NET 5)



Resilient & safe
(with native performance)



Object-oriented
(with functional features)

C#

- **general-purpose**
- **multi-paradigm imperative, declarative, functional**
- **strong typing (explicit, implicit)**
- **generic**
- **object-oriented (class-based)**

C#

- **Desktopové a systémové aplikace (GUI, Console, Služba)**
- **Serverové aplikace (asp.net, MVC, API,..)**
- **Embedded**
- **Cloud – Azure**
- **Scripts (LINQPad)**

The C# Development Stack

Microsoft .NET

The platform you need
to run C# programs

C#

The language itself:
compiler, linker...

Visual Studio

The Integrated
Development
Environment

.NET

- **CLR**
- **Framework Class Library**
- **Languages C# / F# / VB**

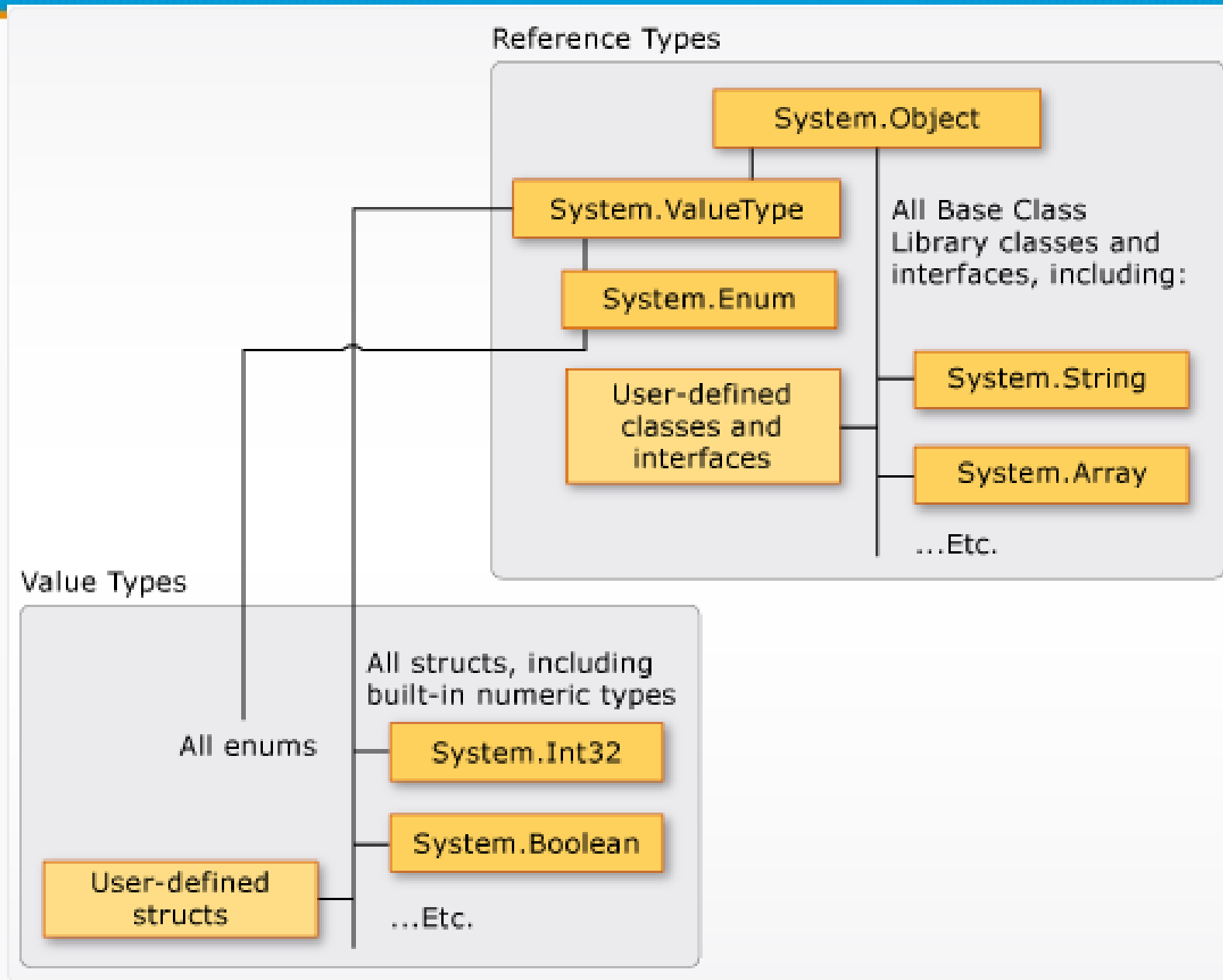
.NET CLR

- **.NET Framework includes the Common Language Runtime (CLR). It serves as the execution engine of .NET Framework and offers many services such as memory management, type safety, exception handling, garbage collection, security and thread management. All programs written for .NET Framework are executed by the CLR.**

.NET Core

- **.NET vs .NET Core**
- **.NET 5**
- **multiplatformní**

C# - vše je objekt



A tour of the C# language

<https://docs.microsoft.com/en-us/dotnet/csharp/tour-of-csharp/>

.NET architecture

Types and variables

Program structure

C# - Building blocks

<https://docs.microsoft.com/en-us/dotnet/csharp/tour-of-csharp/program-building-blocks>

Class Members

Accessibility

Fields

Methods

Parameters

Static and instance methods

Virtual, override, and abstract methods

Method overloading

Constructors

Properties

Indexers

Events

Operators

Expressions

Statements

Stataické vs instance

- **Int, float, double,..**
- **String**
- **DateTime**
- **File**
- Convert
- Console

Kolekce

- **Arrays**
- **Generics**
- **IEnumerable, ICollection**
- **List**
- **Dictionary**
- **HashSet**
- **ObservableCollection**

LINQ

- Language Integrated Query
- Extension Methods
- Lambdas
- Anonymous types
- SQL, InMemory, XML, ..