



What is dependency injection?

Laurențiu Stamate

Microsoft Student Partners

Agenda

- History and context
- Inversion of Control
- Dependency Injection
- Demo console app in C#
- Demo ASP.NET Core app
- Tic-Tac-Toe in Blazor



History and context

- Why was it created?
- Why do we use it?
- How is it useful?
- What are the pitfalls?



History and context

- Why was it created?
 - We should ask ourselves why OOP was created
- Why do we use it?
- How is it useful?
- What are the pitfalls?



History and context

- Why was it created?
 - We should ask ourselves why OOP was created
- Why do we use it?
 - The need to have a loosely coupled system
- How is it useful?
- What are the pitfalls?



History and context

- Why was it created?
 - We should ask ourselves why OOP was created
- Why do we use it?
 - The need to have a loosely coupled system
- How is it useful?
 - Allows concurrent or independent development
 - Makes Unit testing easier
- What are the pitfalls?



History and context

- Why was it created?
 - We should ask ourselves why OOP was created
- Why do we use it?
 - The need to have a loosely coupled system
- How is it useful?
 - Allows concurrent or independent development
 - Makes Unit testing easier
- What are the pitfalls?
 - Compile-time errors are pushed to run-time
 - Steep learning curve and overuse can lead to management issues



Inversion of Control

- Describes a design in which portions of a program receives control of code execution from a reusable library
- Factory pattern
- Template method design pattern

Dependency Injection

- Separates the creation of a client's dependencies from the client's behavior
- An injection works the same as parameter passing
- An injection is also about control passing

Dependency Injection

- Dependency injection involves four roles:
 - the service object(s) to be used
 - the client object that is depending on
 - the interfaces that define how the client may use the services
 - the injector, which is responsible for constructing the services and injecting them into the client

Dependency injection (for kids)

John Munsch, 28 October 2009



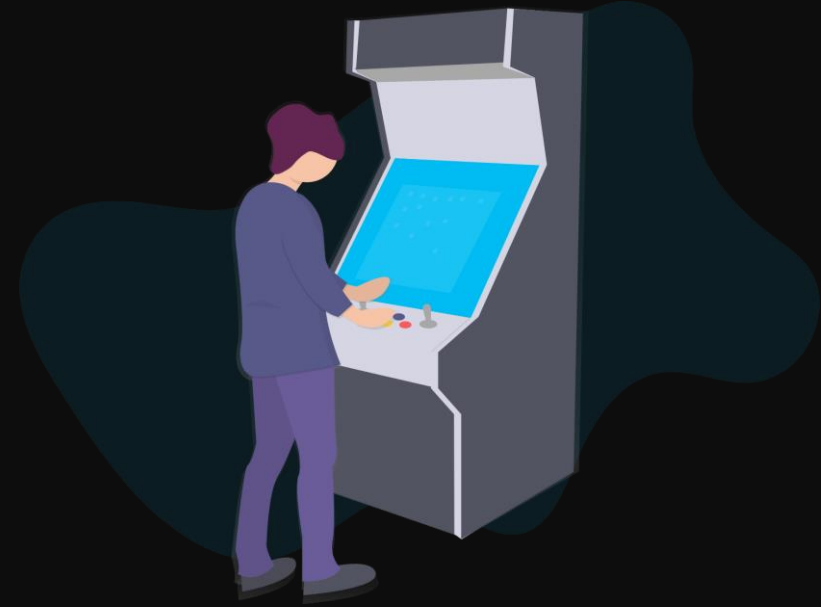
Demo console application in C#



Demo ASP.NET Core application

0	1	1	0	0	0	1	1	0	1	1	0	1	1	1	1	0	1	1	0	0	1	0	0	0	1	1	0	0	1
0	1	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	1	1	0	0	1	1	0	0	1	0
0	0	0		0	1	1	0	1	1	0	0	0	1	1	0	1	0	0	1	0	1	1	0	0	1	1	0	0	1
1	0	0	1	0	1	0	1	1	0	0	0	1	1	0	1	1	0	1	1	1	1	0	1	1	0	0	1	0	0
0	1	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	1	1	0	0
0	1	1	0	0	1	1	0	0	1	0	1	0	1	1	0	0	0	1	1	0	1	1	0	1	1	1	1	0	1
0	1	1	0	0	1	1	0	0	1	0	1	0	1	1	0	0	0	1	1	0	1	1	0	1	1	1	1	0	1

Tic-Tac-Toe in Blazor



0	1	1	0	0	0	1	1	0	1	1	0	1	1	1	1	0	1	1	0	0	1	0	0	0	1	1	0	0	1
0	1	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	1	1	0	0	1	1	0	0	1	0
0	0	0		0	1	1	0	1	1	0	0	0	1	1	0	1	0	0	1	0	1	1	0	0	1	1	0	0	1
1	0	0	1	0	1	0	1	1	0	0	0	1	1	0	1	1	0	1	1	1	1	0	1	1	0	0	1	0	0
0	1	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	1	1	0	0
0	1	1	0	0	1	1	0	0	1	0	1	0	1	1	0	0	0	1	1	0	1	1	0	1	1	1	1	0	1
0	1	1	0	0	1	1	0	0	1	0	1	0	1	1	0	0	0	1	1	0	1	1	0	1	1	1	1	0	1

Microsoft Student Partners

