👋 Bye, Singletons *

🙌 Dependency Injection

```
let author = "Konstantin Portnov"
let github = "github.com/x0000ff"
```

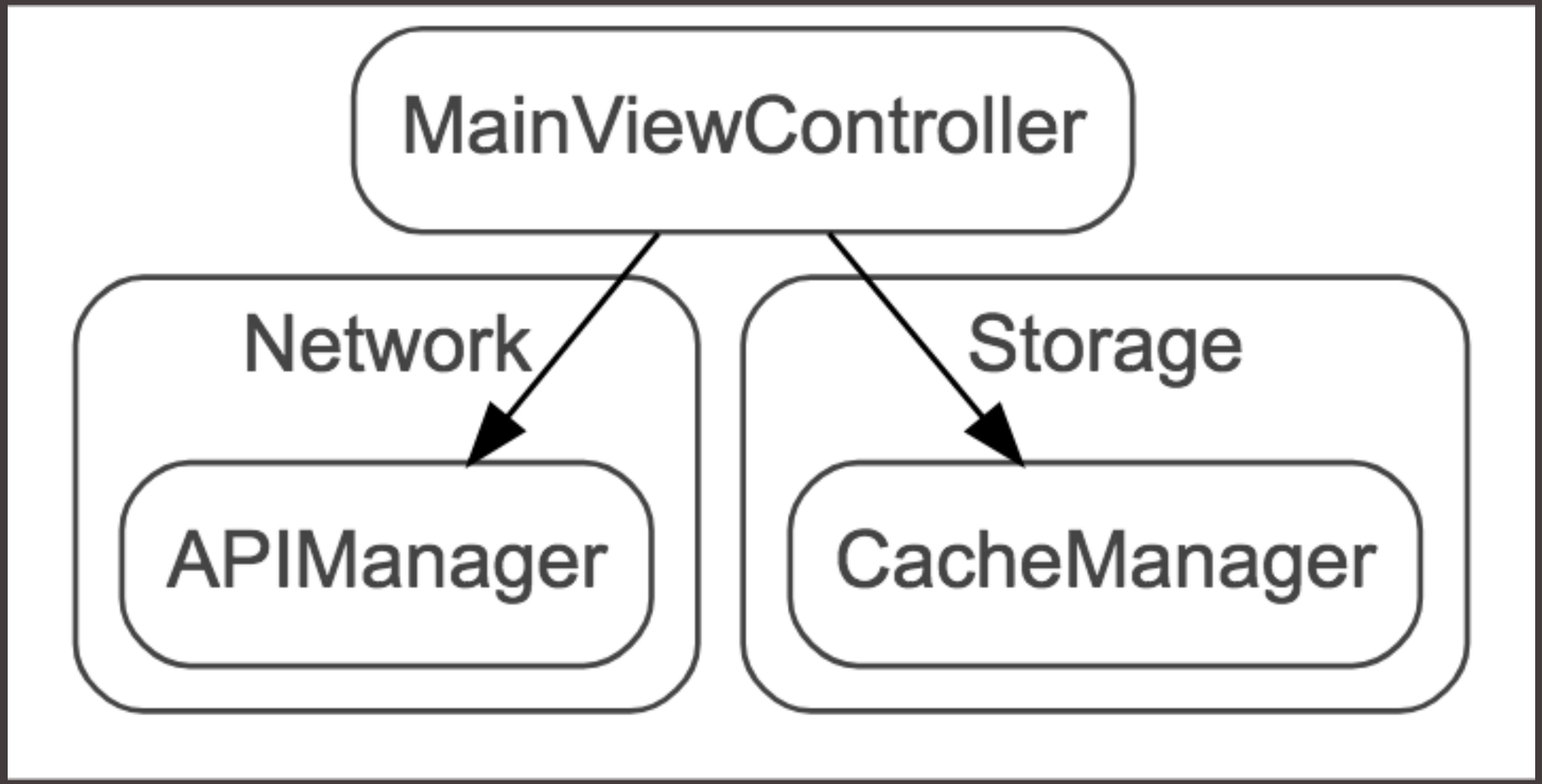
mercado libre

* https://octodex.github.com/dojocat

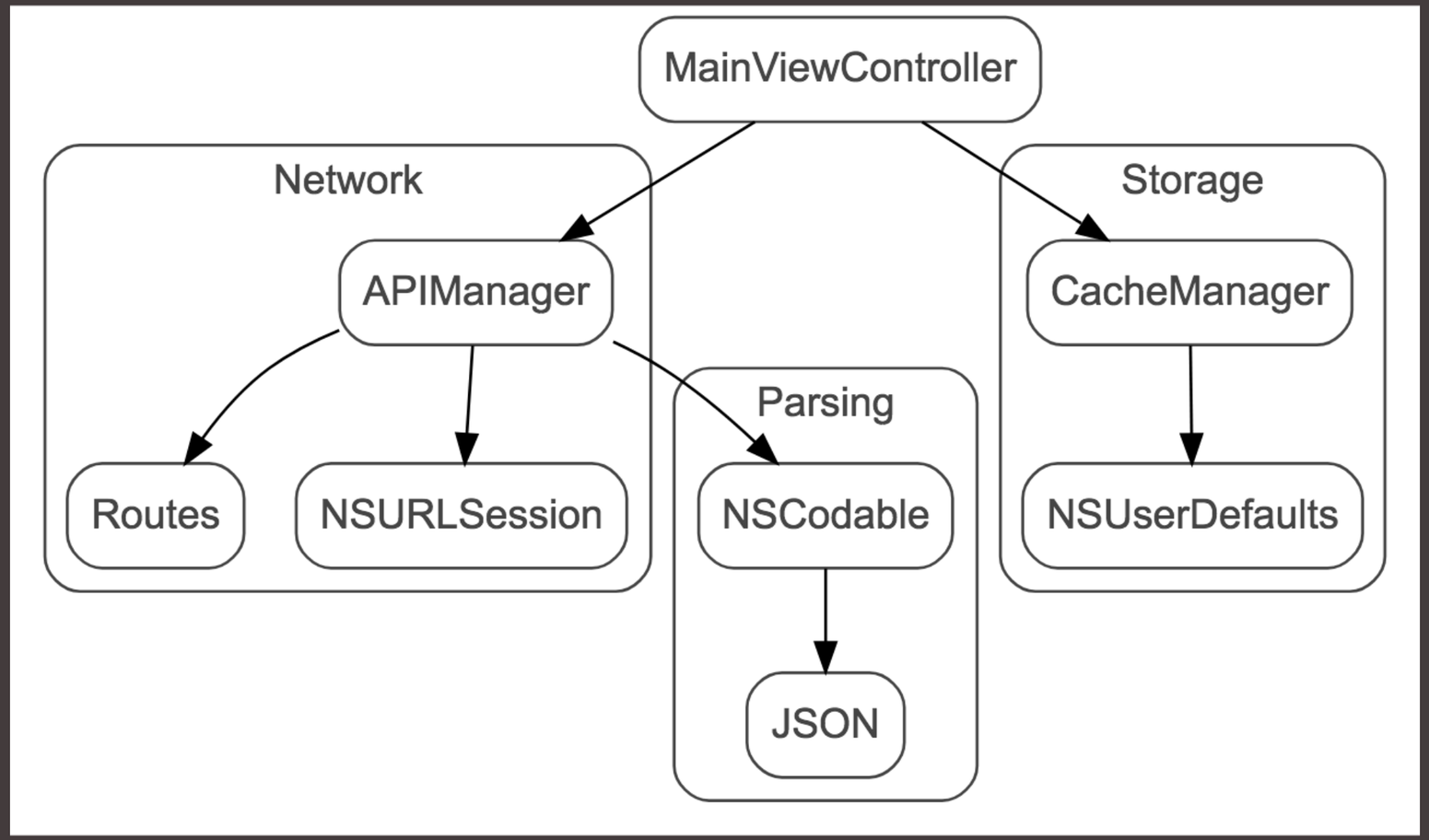
Show Time

👨‍💻 Code Time!

Flowchart. Really? 🤔



Flowchart. Reality 🤫



So what's the problem? 😒

👇 Here they are...

- ✅ How to test?
- 🔗 What if we change endpoint names?
- 🚀 Use `production` end `development` environments
- 📦 Migrate from `JSON` to `TomorrowSON`?
- 🚧 How to implement/change it working in a team?
- 🔑 Change cache mechanism from `NSUserDefaults` to `Keychain`

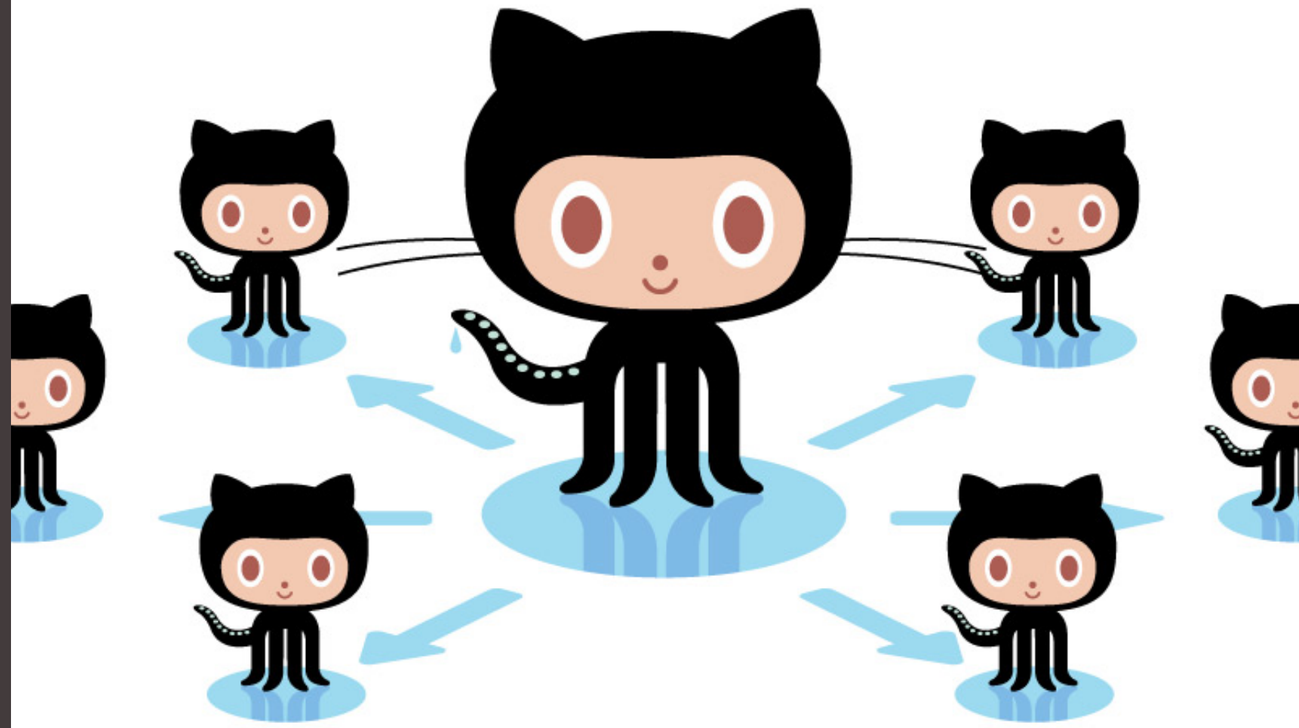
😏 That’s a problem for future me

😔 OK. I got it. What should I do?

Singleton

In software engineering, the singleton pattern is a software design pattern that restricts the instantiation of a class to one object.

– Wikipedia



Famous singletons

- `(NS)NotificationCenter.default`
- `(NS)UserDefaults.standard`
- `UIApplication.shared`
- `UIDevice.current`

etc...

Tipical implemetation

```
class SomeManager {
    static let shared = SomeManager()
    private init(){ /* ... */ }
    func doWork() { /* ... */ }
}

let manager = SomeManager.shared
manager.doWork()
```

🎉 Service Locator

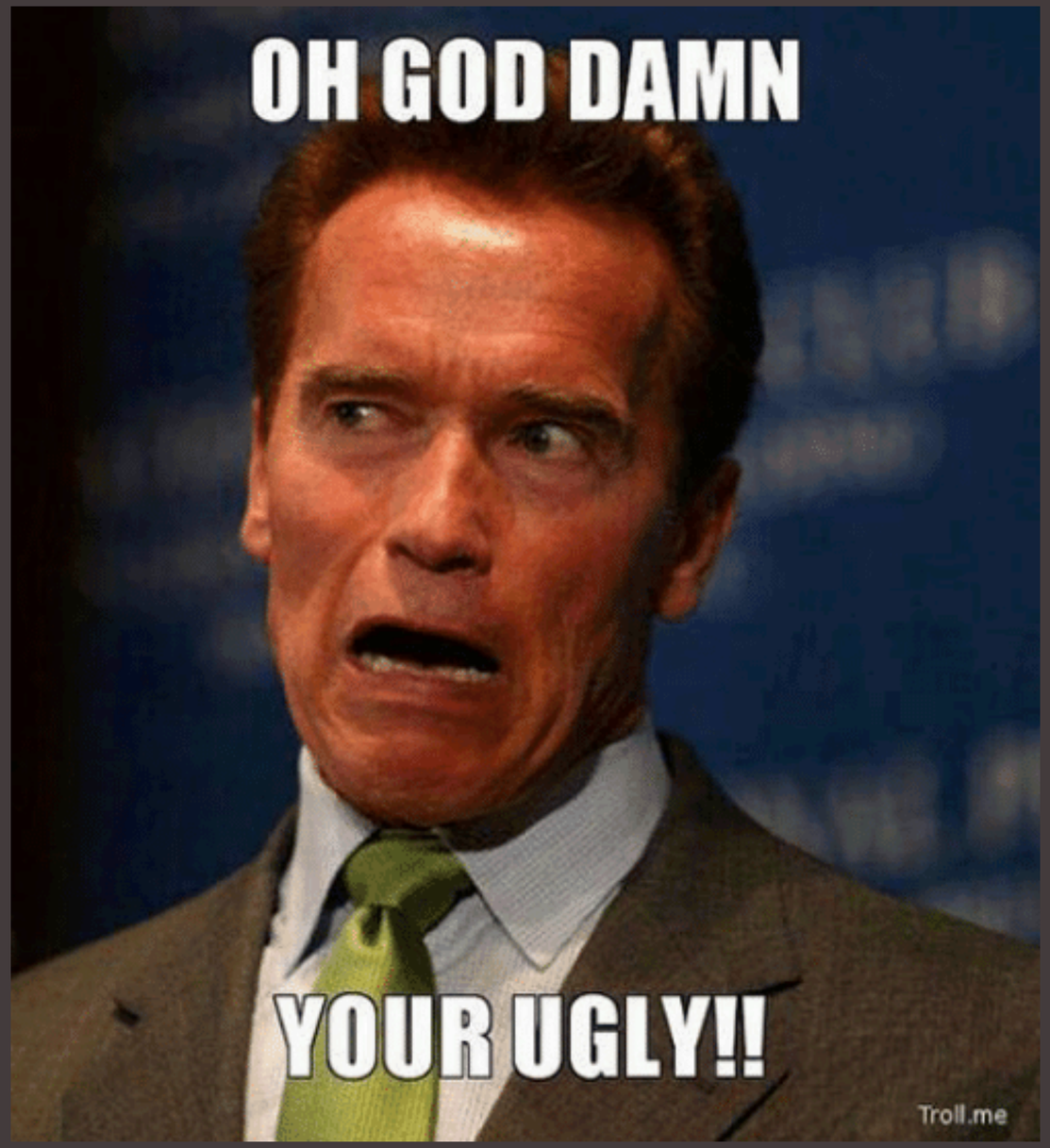
```
protocol ServiceLocating {
    func getService<T>() -> T?
}
```

👷 Implementation

```
final class ServiceLocator: ServiceLocating {
    private lazy var services: Dictionary<String, Any> = [:]

    private func typeName(some: Any) -> String {
        return (some is Any.Type) ? "\(some)" : "\(type(of: some))"
    }

    func register<T>(service: T) {
        let key = typeName(some: T.self)
        services[key] = service
    }

    func getService<T>() -> T? {
        let key = typeName(some: T.self)
        return services[key] as? T
    }
    public static let shared = ServiceLocator()
}
```

🤔 How To Use?

```
protocol APIService {
    func getBalance(calback: () -> (Balance)) -> Void)?)
}
class WebAPIService: APIService { }

let locator = ServiceLocator()
locator.register(service: WebAPIService() as APIService)

let apiService = locator.getService() as APIService?
apiService?.load(/*... */)
```


OH GOD DAMN
YOUR UGLY!!
Troll.me

👋 Chao, optionals!

```
protocol ServiceLocating {
    var apiService: APIService { get }
    var cacheManager: CacheManager { get }
}

final class ServiceLocator: ServiceLocating {

    var apiService: APIService = WebAPIService()
    var cacheManager: CacheManager = UserDefaultsCacheManager()

    public static let shared = ServiceLocator()
}
```

☺️ Mock me, mock me harder...

```
protocol APIService {
    func load(cardNumber: String,
              completion: ((Result<StatusResponse>) -> Void)?)
}
```

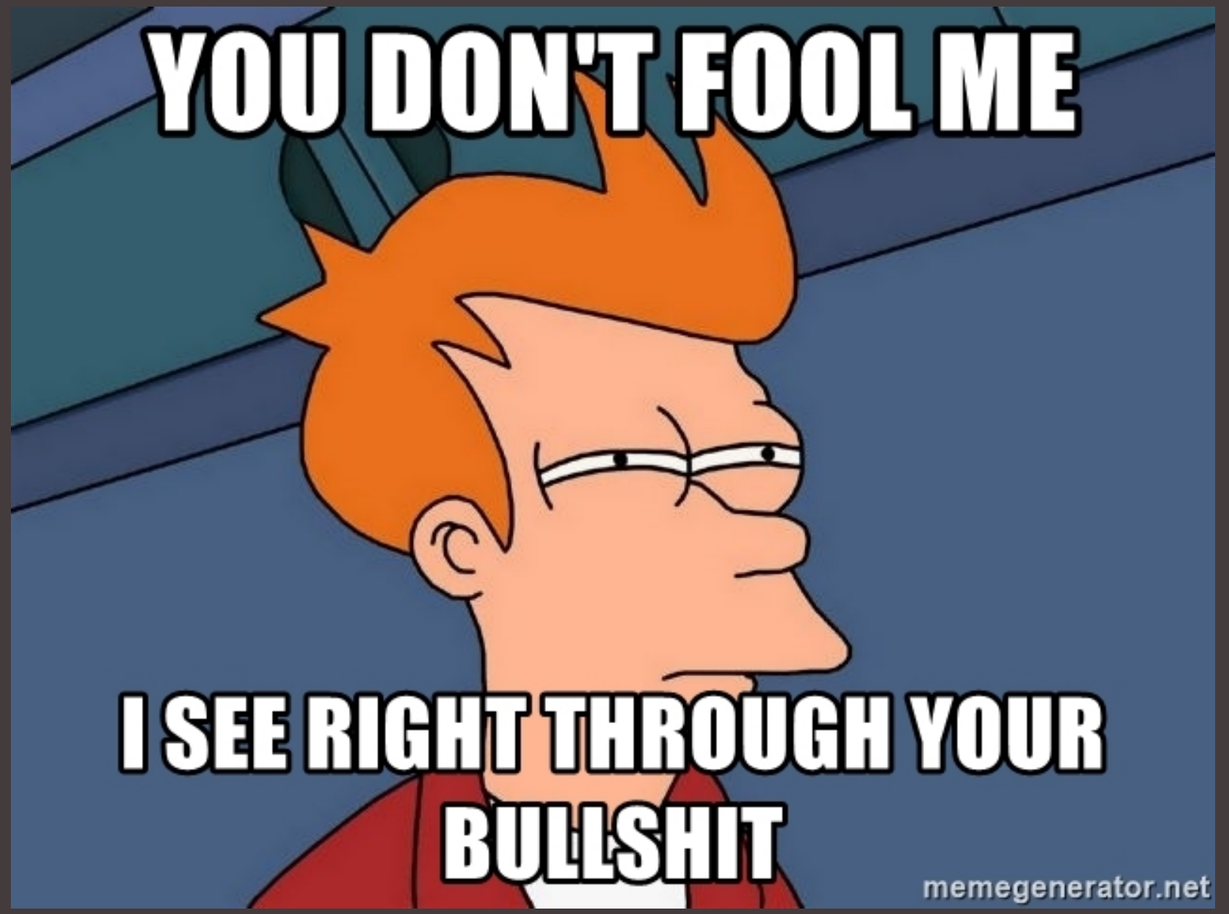
☺️ Mock me, mock me harder...

```
class LocalApiService: APIService {
    func load(cardNumber: String,
              completion: ((Result<StatusResponse>) -> Void)?) {

        let result = (cardNumber == "") ? faulureResult()
                                        : successResult()
        completion?(result)
    }
}

// See complete implementation in https://github.com/x0000ff/bip-app
```

☺️ Mock me, mock me hard...

```
class AppDelegate: UIResponder, UIApplicationDelegate {

    func application(/* ... */) -> Bool {

        ServiceLocator.shared.apiService = LocalApiService()

        return true
    }
}
```

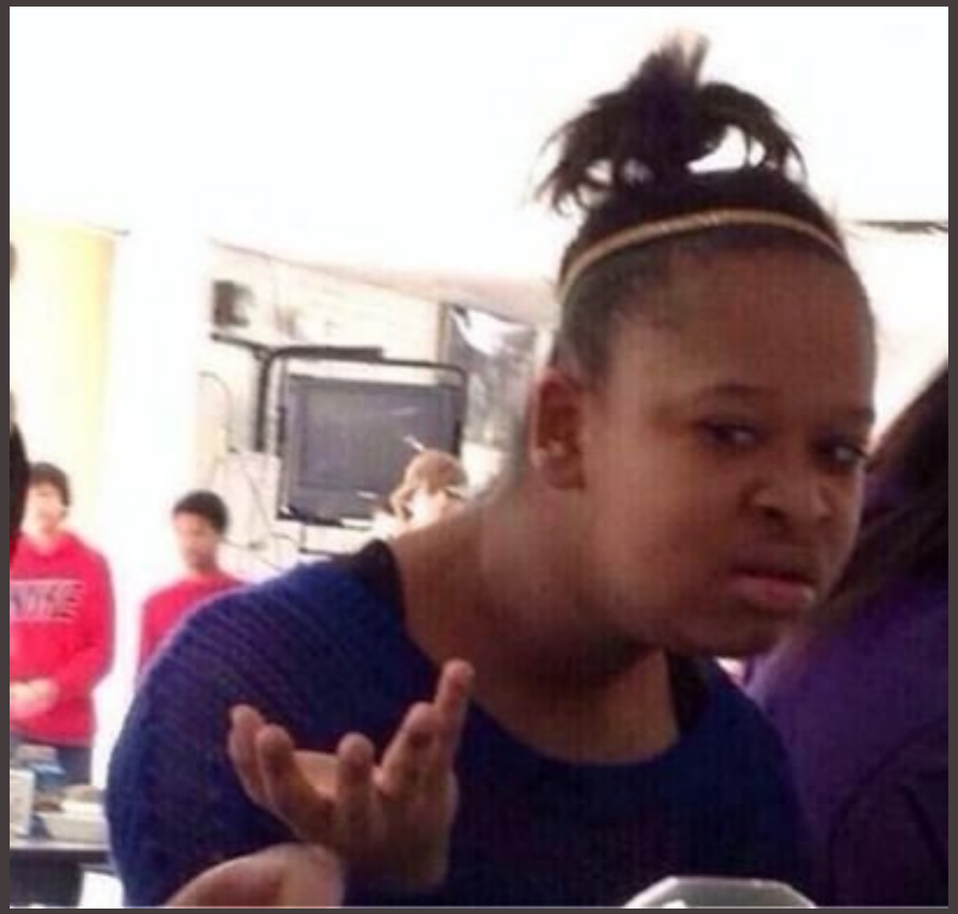
🤨 But we still use a singleton



😒 But we still use a singleton

➡️ `ServiceLocator.shared.apiService = MockApiService()`

😒 But we still use a singleton



Responsibility & Coupling

Inversion of Control

Dependency Injection

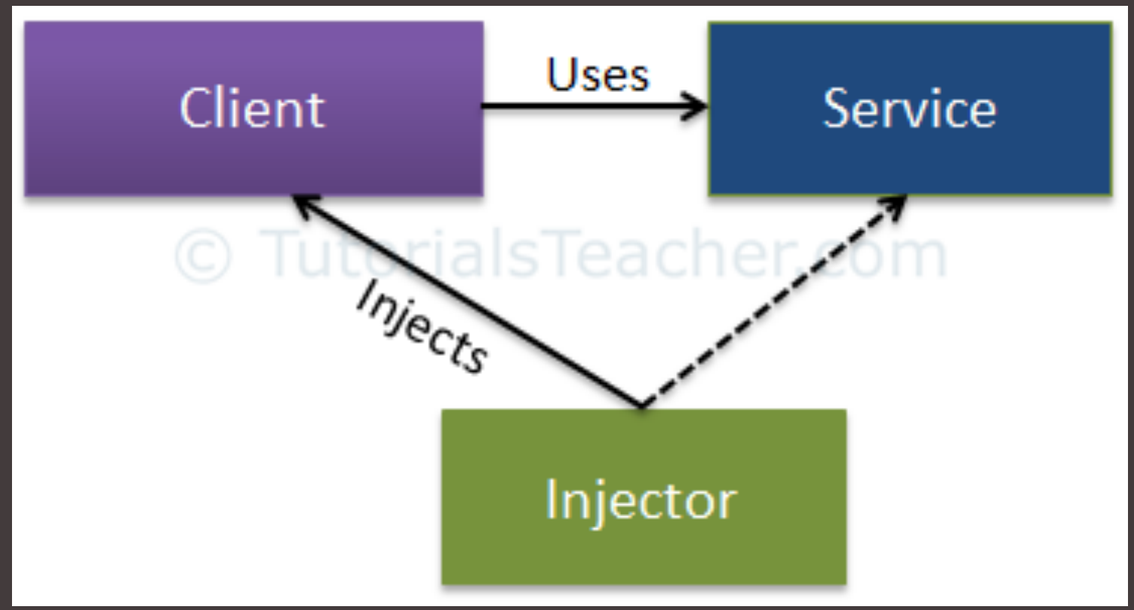
Simple Dependency Injection

```
class MyClass
{
  private let dependency:MyDependency

  init(dependency:MyDependency)
  {
    self.dependency = dependency
  }
}
```

DI actors

Dependency Injection pattern involves 3 types of classes.

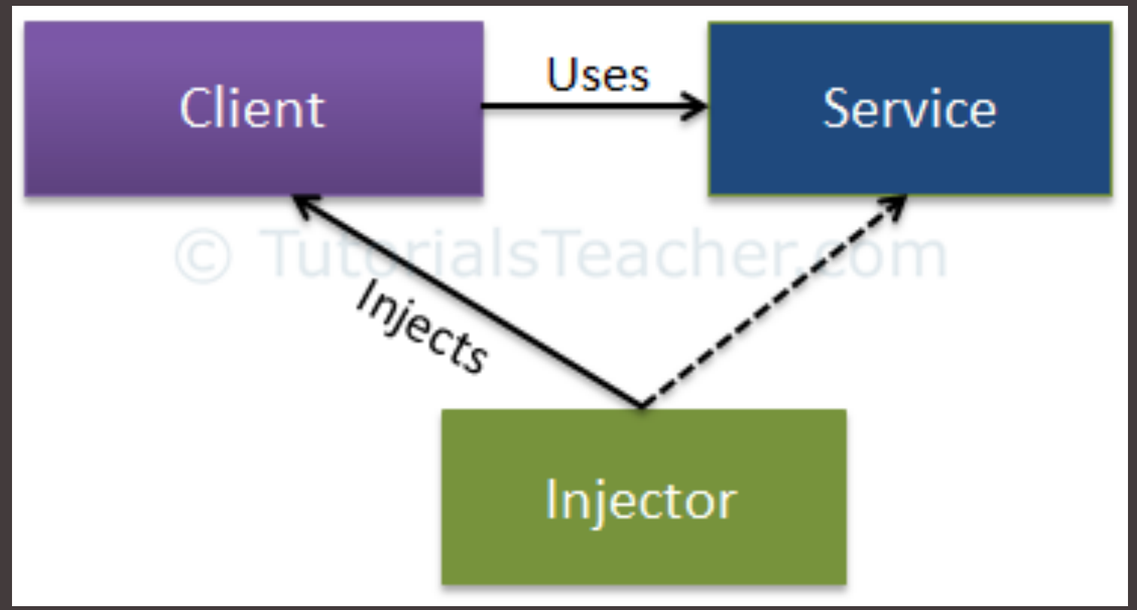
- 1. **Client Class**: The client class (dependent class) is a class which depends on the service class



DI actors

Dependency Injection pattern involves 3 types of classes.

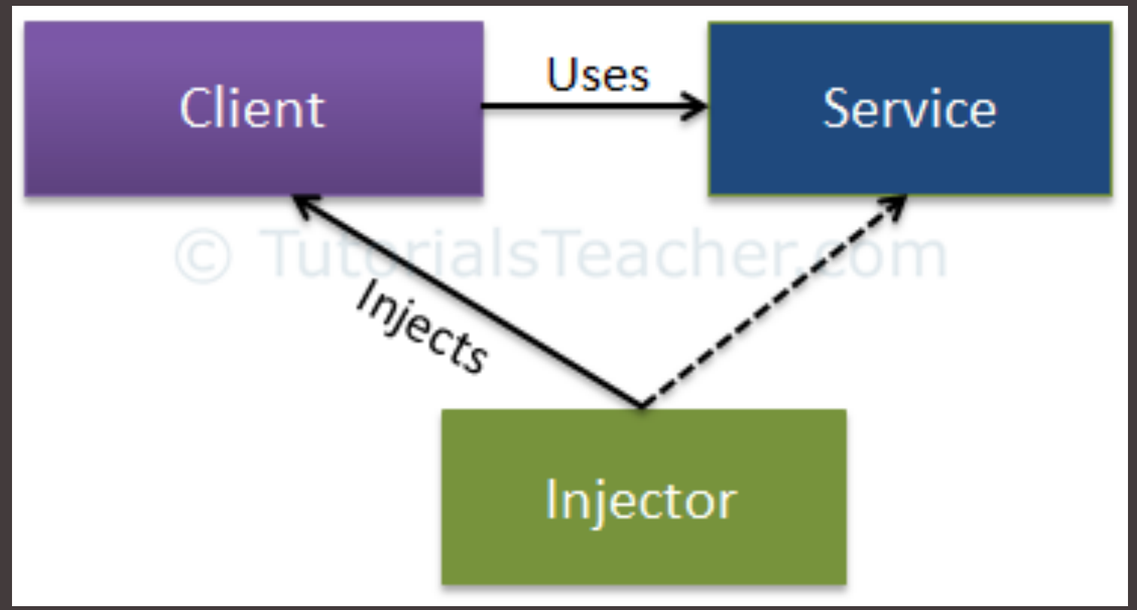
- 2. **Service Class**: The service class (dependency) is a class that provides service to the client class.



DI actors

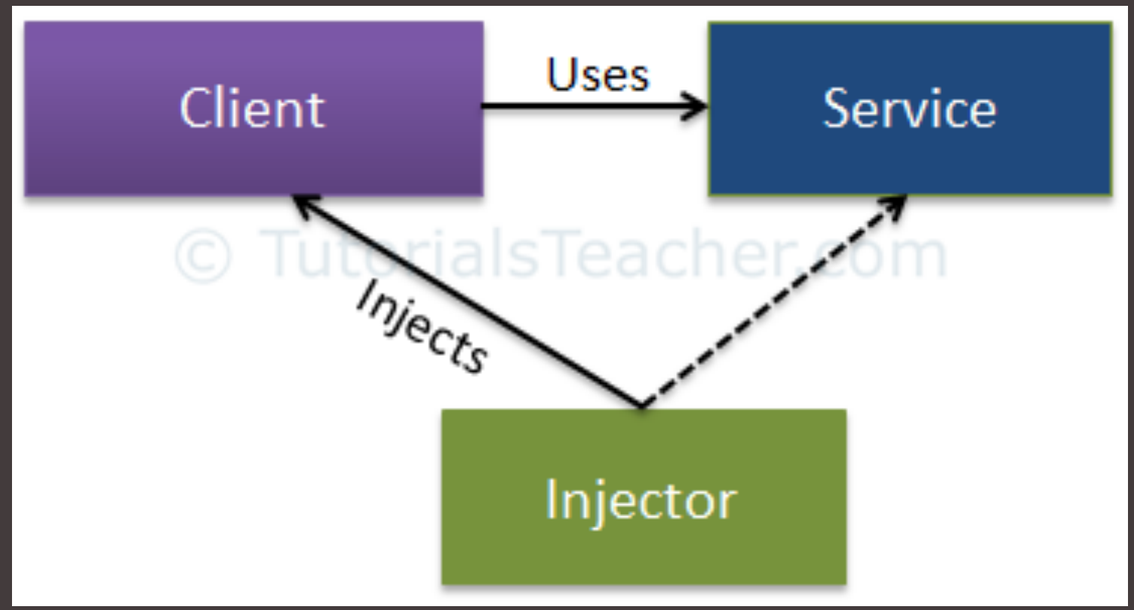
Dependency Injection pattern involves 3 types of classes.

- 3. **Injector Class**: The injector class injects service class object into the client class.



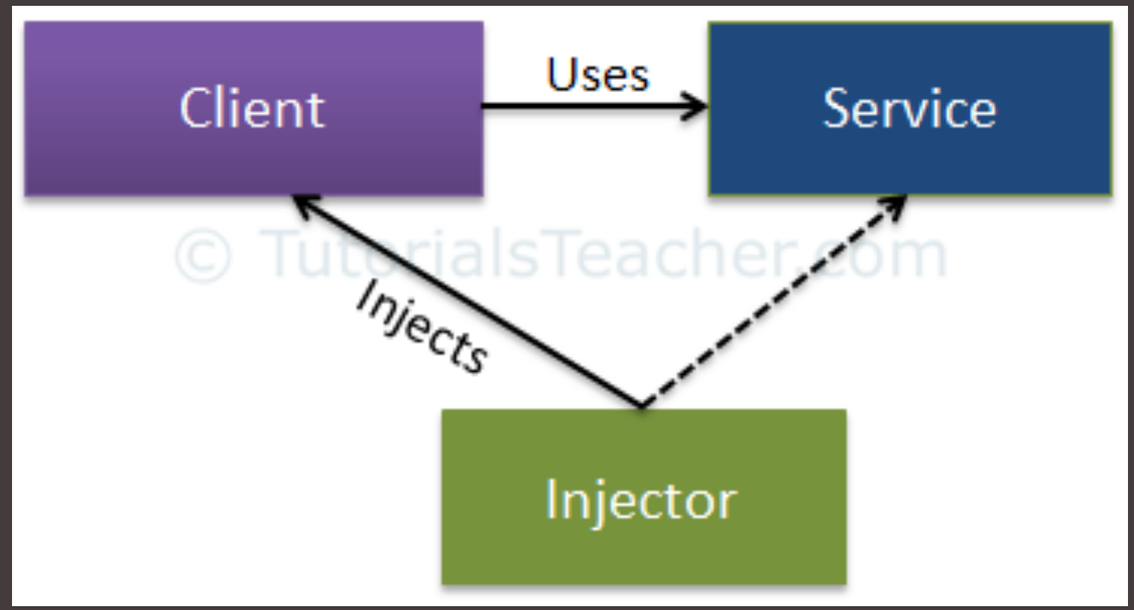
Types of Dependency Injection

- **Constructor Injection**: In the constructor injection, injector supplies service (dependency) through the client class constructor.



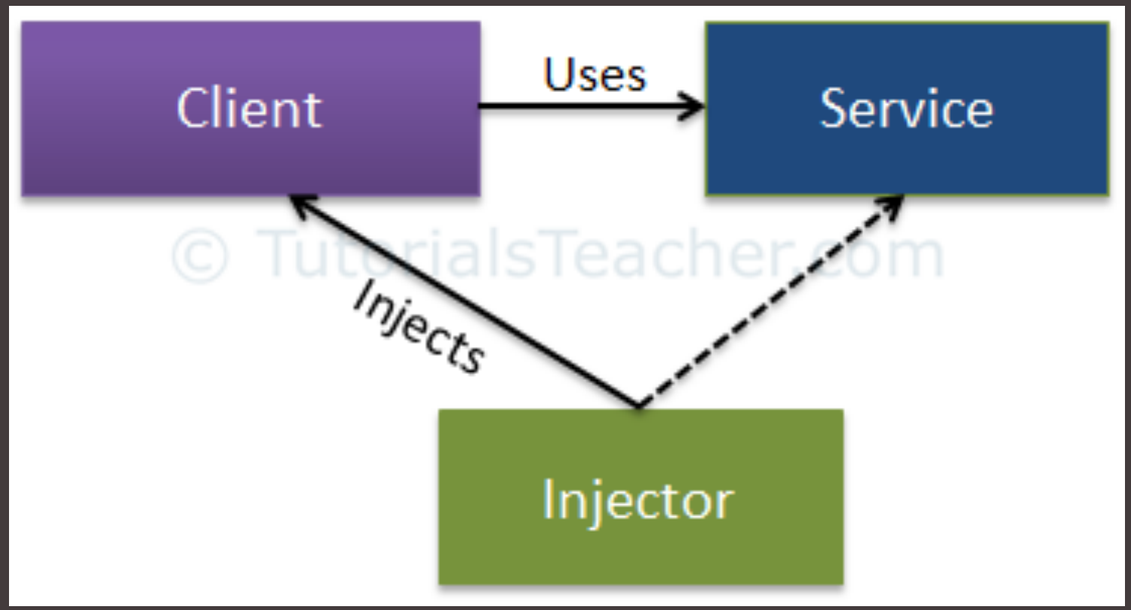
Types of Dependency Injection

- **Property Injection**: In property injection (aka Setter Injection), injector supplies dependency through a public property of the client class.



Types of Dependency Injection

- **Method Injection**: In this type of injection, client class implements an interface which declares method(s) to supply dependency and the injector uses this interface to supply dependency to the client class.

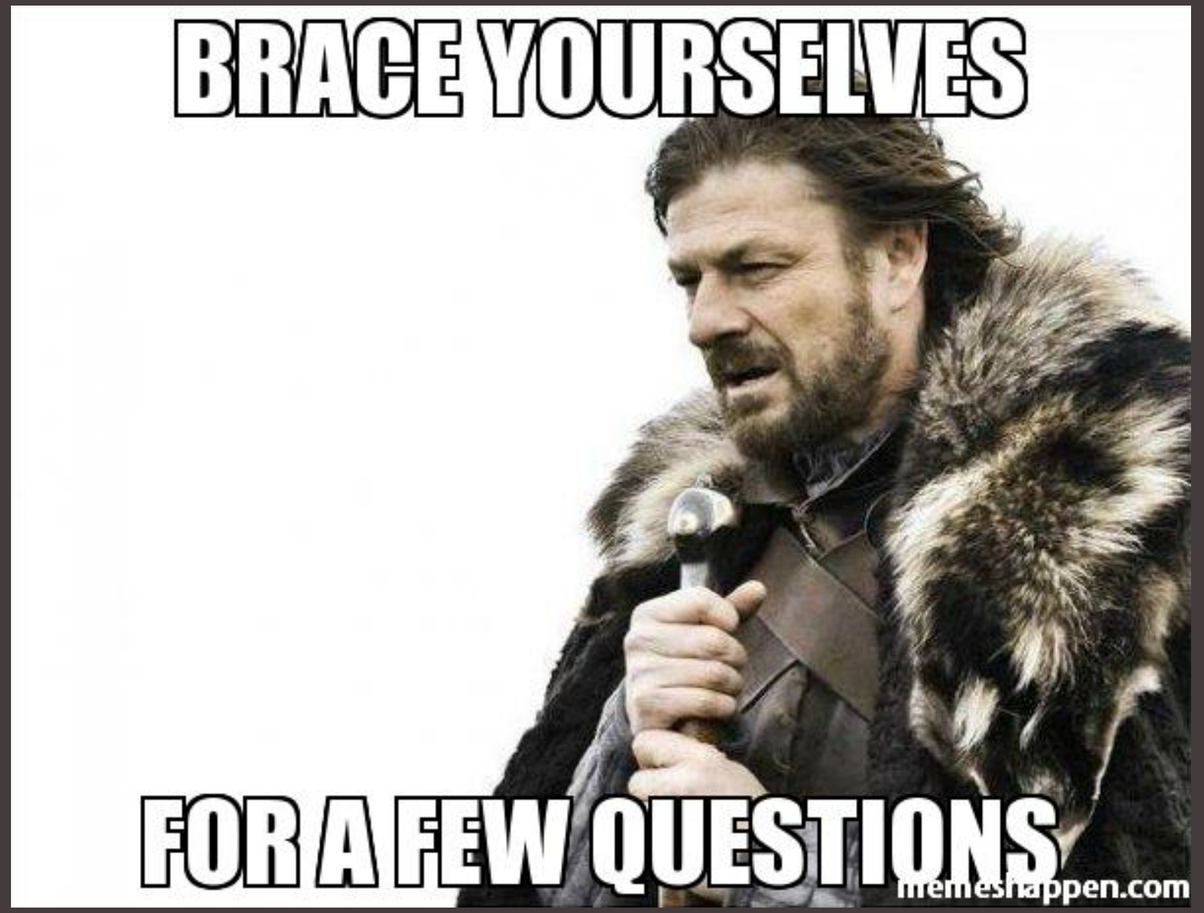


Let's get hands dirty

Show must go on

- http://www.tutorialsteacher.com/ioc/inversion-of-control
- https://github.com/x0000ff/presentation-singletons-and-dependecy-injection
- https://github.com/x0000ff/bip-app
- https://github.com/x0000ff/bip-api

Questions? 🙂



Me...

- Konstantin Portnov
- http://about.me/x0000ff
- https://github.com/x0000ff
- https://twitter.com/x0000ff
- https://www.linkedin.com/in/KonstantinPortnov

This Presentation

https://bit.ly/2Le94P8

Thanks a lot!
¡Muchas gracias!
¡Moltes gràcies!
Большое спасибо!

☺️

EOF