



# SOLID Principles

Mobile Geeks - September 2020

# What is SOLID

Introduced in 2000 paper *Design Principles and Design Patterns* by this guy, Robert Martin (a.k.a. Uncle Bob):



# What is SOLID

SOLID is a complicated way of saying “Divide et Impera”

Purported actual author: Philip II of Macedon



# What is SOLID

**S**ingle Responsibility Principle

**O**pen/Close Principle

**L**iskov Substitution Principle

**I**nterface Segregation Principle

**D**ependency Inversion Principle

Essentially:

Take a monolith and break it down into constituent independent modules.

# SOLID & Mobile Development

All Software has to be easy to:

- Maintain
- Extend
- Read
- (implicitly) Test

Software written for Mobile is often:

- None of these things

# Demo Time!

## ViewController

paymentTakingService

loginPressed

selectRow

## PaymentTakingService

isLoggedIn

login

takeVisaPayment

takeMasterCardPayment

takeGiftCardPayment:qrScanner

private \_\_\_\_\_

activateQRScanner

takeGiftCardPayment

# Single Responsibility Principle

Unsurprisingly: A class should only have a single responsibility





# Single Responsibility Principle

## ViewController

user  
paymentTakingService  
qrScanner

loginPressed  
selectRow

## User

isLoggedIn  
login

## QRScanner

activateQRScanner

## PaymentTakingService

takeVisaPayment  
takeMasterCardPayment  
takeGiftCardPayment:qrScanner

# Open-Closed Principle

Software should be open for extension, but closed for modification.

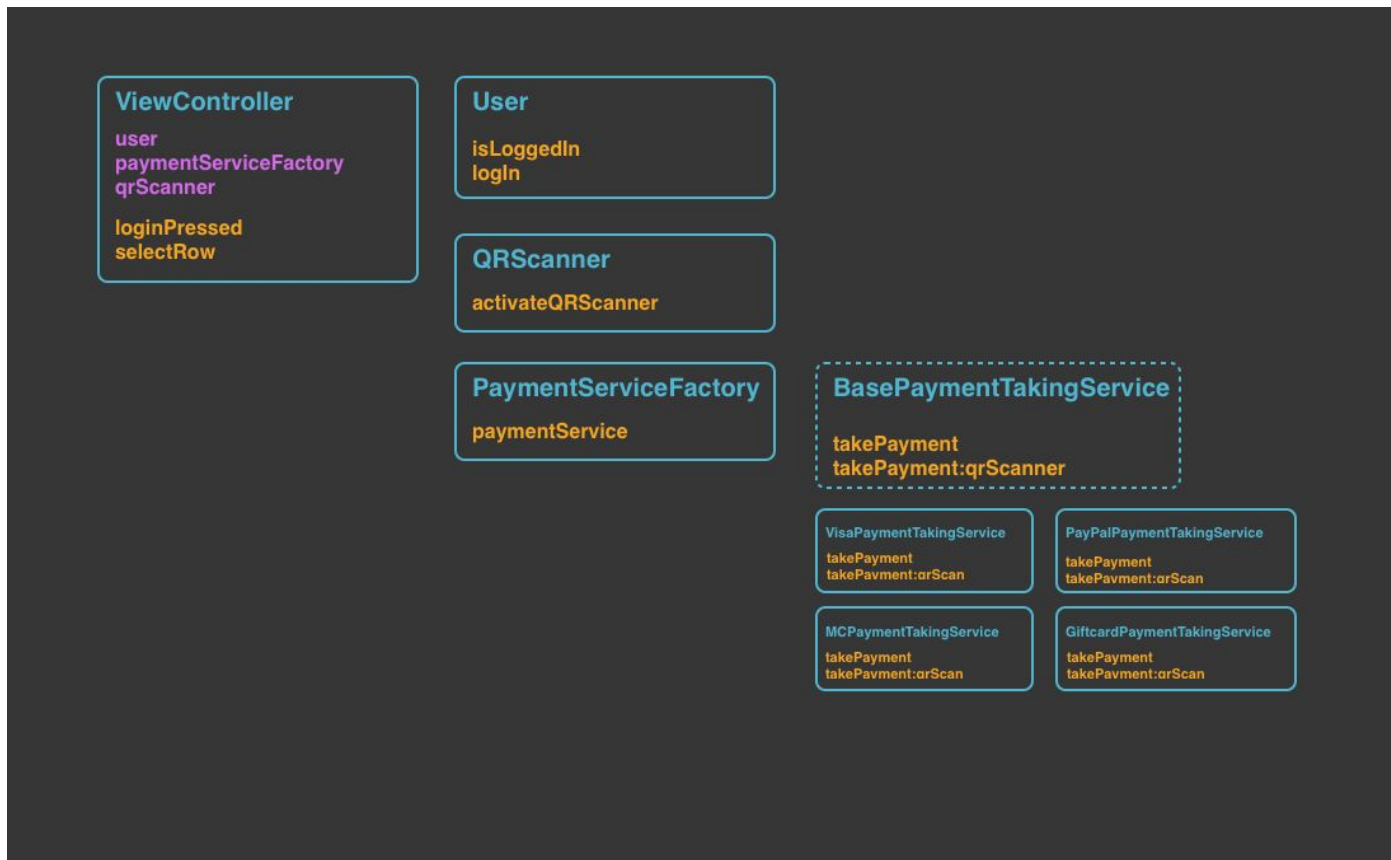
# Liskov Substitution Principle

Objects should be replaceable with instances of their subtypes without altering the program.

Replace one lens with another, the microscope still works



# Open/Close Principle & Liskov Substitution Principle

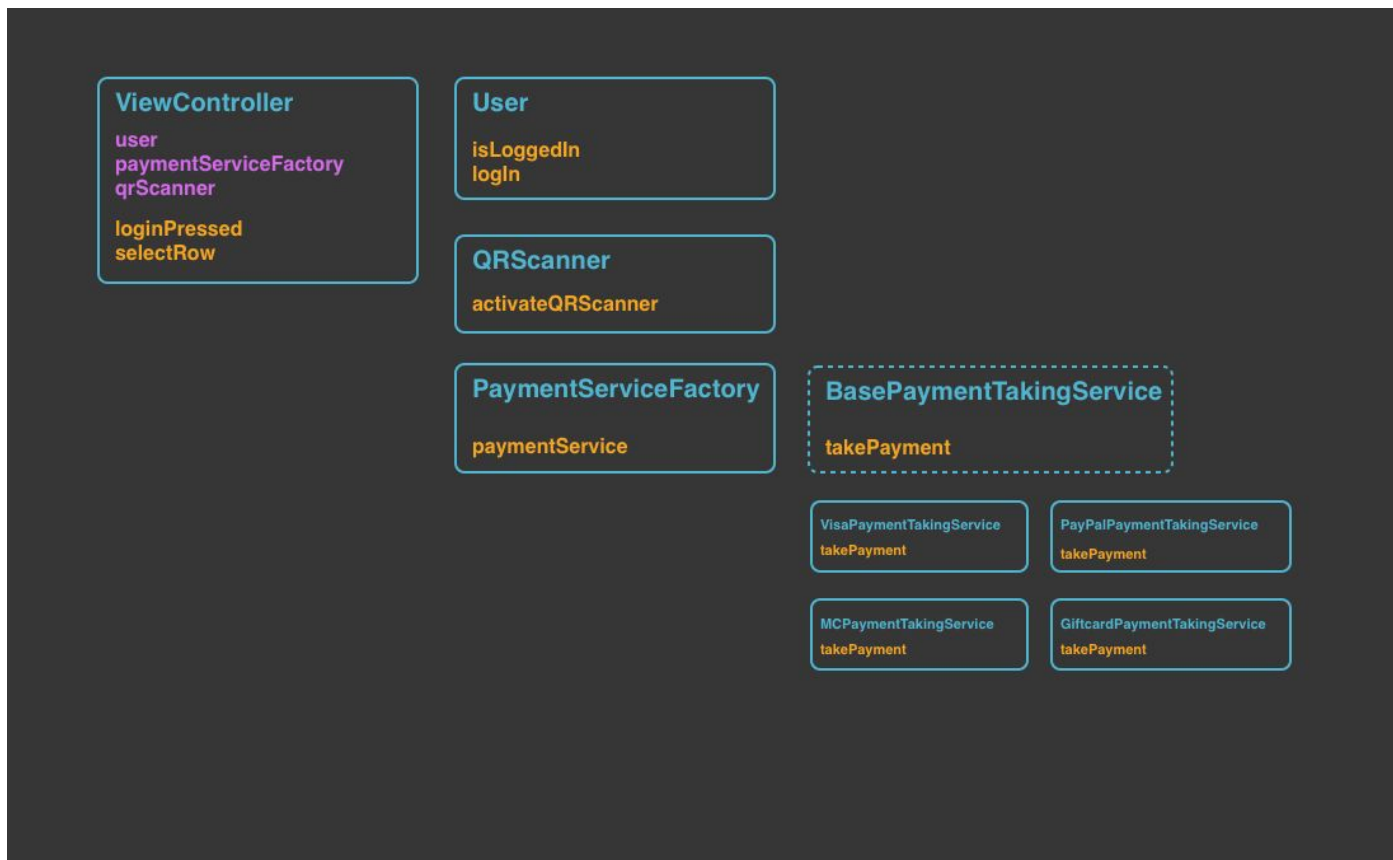


# Interface Segregation Principle

No client should be forced to depend on methods it does not use

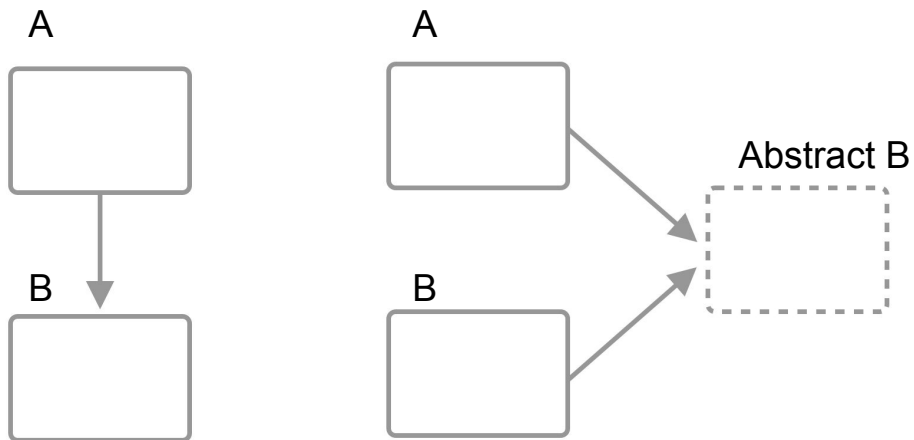


# Interface Segregation Principle

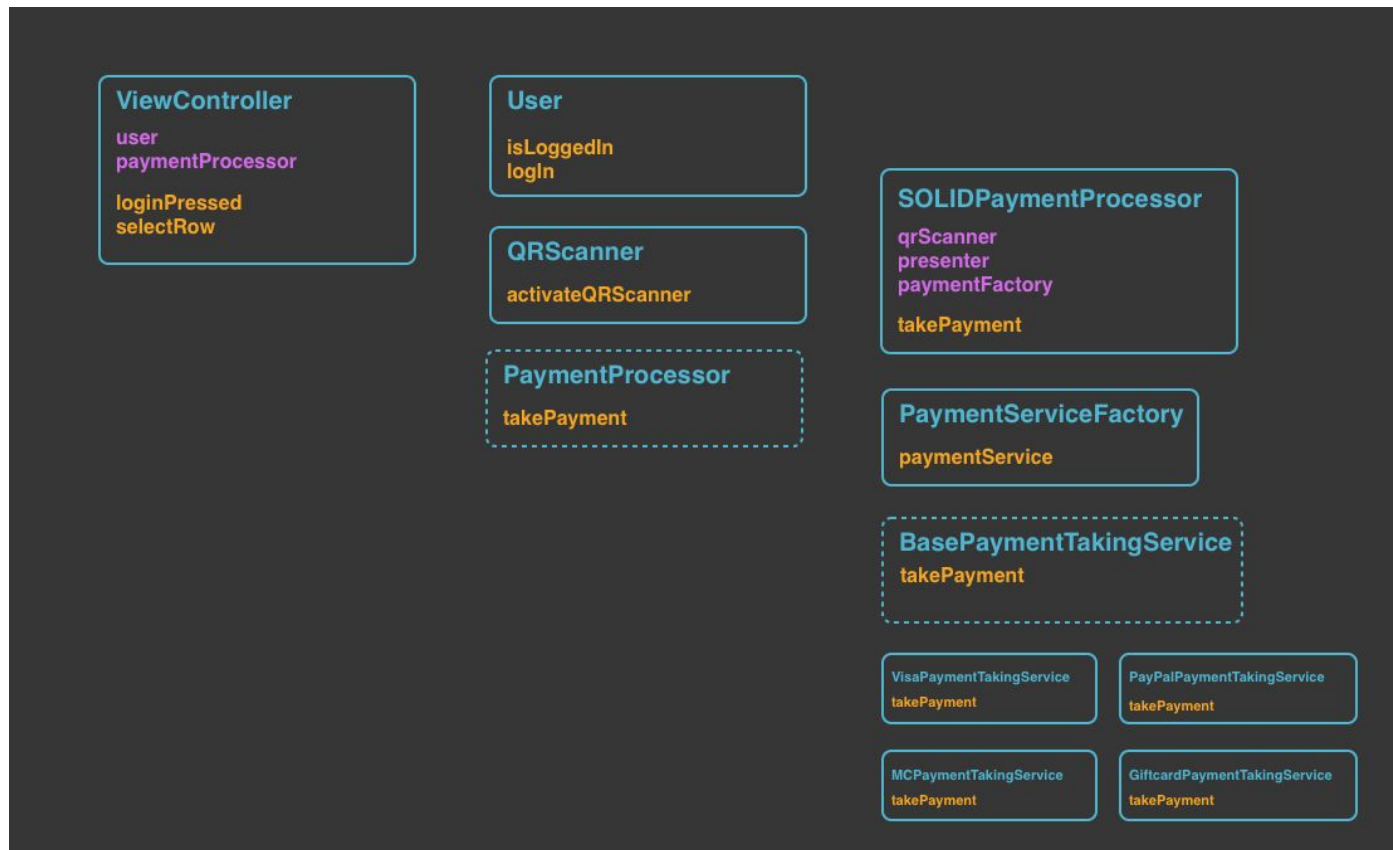


# Dependency Inversion Principle

Depend on abstractions, not concrete objects



# Dependency Inversion Principle





# Takeaways and conclusion

- Remember that SOLID is a guide, not a doctrine.
- The goal is to break down code into constituent parts.
- Less code > More Code. More Classes > Fewer Classes.
- The thing to avoid: fragmentation and over-engineering.

# Thanks!

Many thanks to Dragos Ionel and the Mobile Geeks audience.

Happy coding