SOLID

En introduksjon

Agenda

- Presentasjon av oss.
- Single Responsibility Principle
- Open / Closed Principle
- Mat?
- Liskov Substitution Principle
- Interface Segregation Principle
- Dependency Inversion Principle
- Oppsummering


ARE YOU A
PROFESSIONAL?
Robert C. Martin


S
SRP
Single Responsibility Principle
O
OCP
Open/Closed Principle
L
LSP
Liskov Substitution Principle
I
ISP
Interface Segregation Principle
D
DIP
Dependency Inversion Principle

SRP

Single Responsibility Principle

«A class should have one, and only one, reason to change»

SINGLE RESPONSIBILITY PRINCIPLE

Just Because You Can, Doesn't Mean You Should

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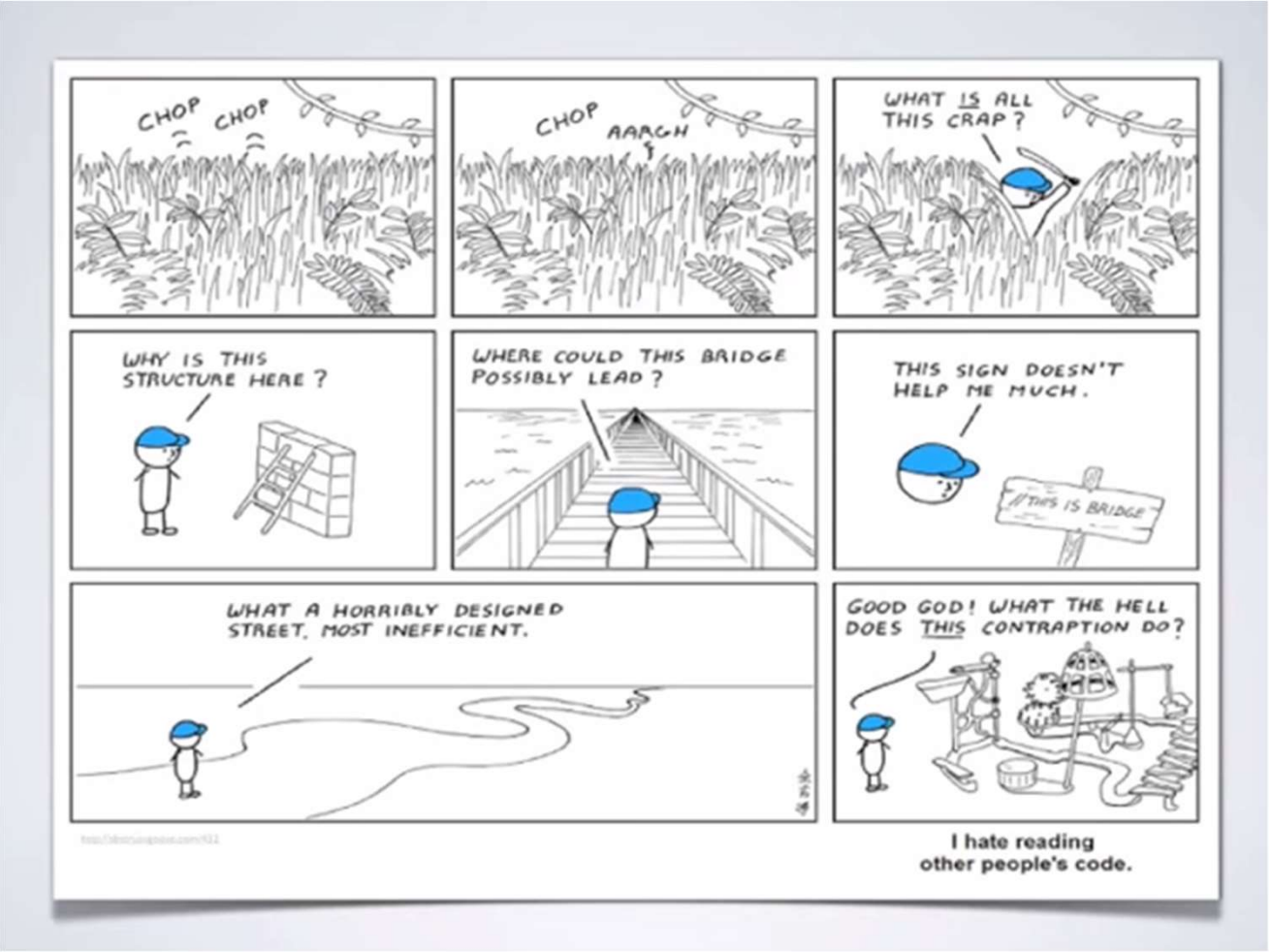

CHOP CHOP
CHOP AARGH
WHAT IS ALL THIS CRAP?
WHY IS THIS STRUCTURE HERE?
WHERE COULD THIS BRIDGE POSSIBLY LEAD?
THIS SIGN DOESN'T HELP ME MUCH.
THIS IS BRIDGE
WHAT A HORRIBLY DESIGNED STREET. MOST INEFFICIENT.
GOOD GOD! WHAT THE HELL DOES THIS CONTRAPTION DO?
I hate reading other people's code.

Praktisk Oppgave

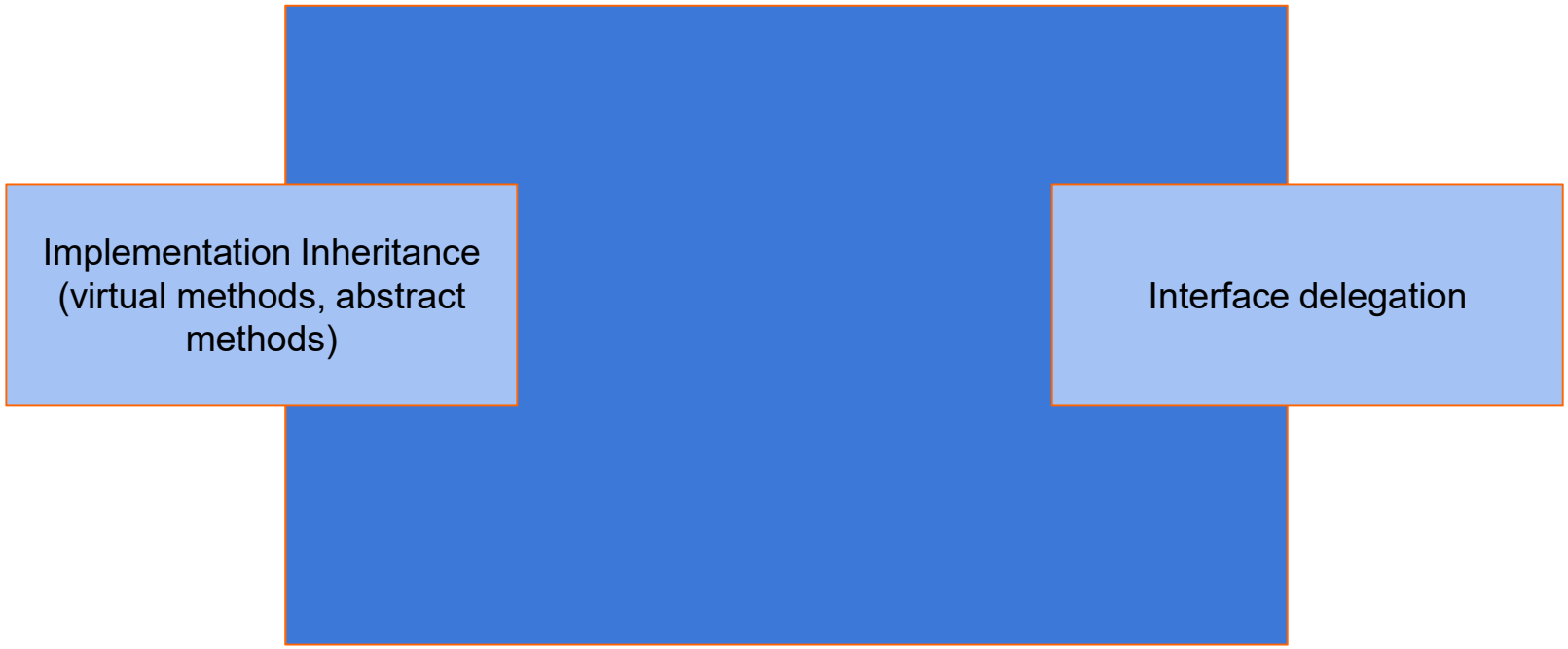
OCP

Open/Closed Principle

“software entities … should be open for extension, but closed for modification”

“You should be able to extend the behavior of a system *without having to modify that system*”

EXTENSION POINTS



OPEN CLOSED PRINCIPLE

Open Chest Surgery Is Not Needed When Putting On A Coat

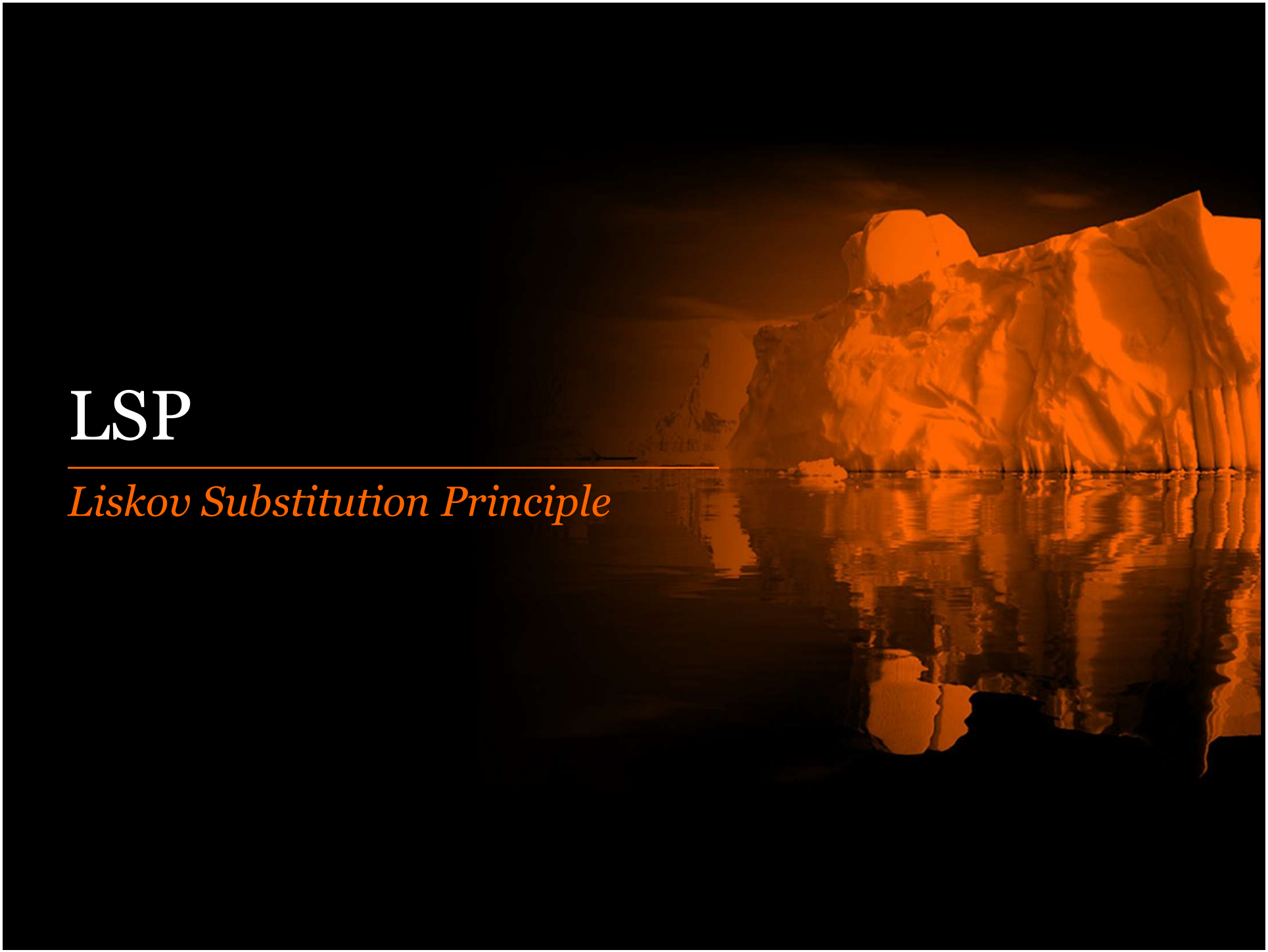
© Derick Bailey


STOP

Praktisk Oppgave

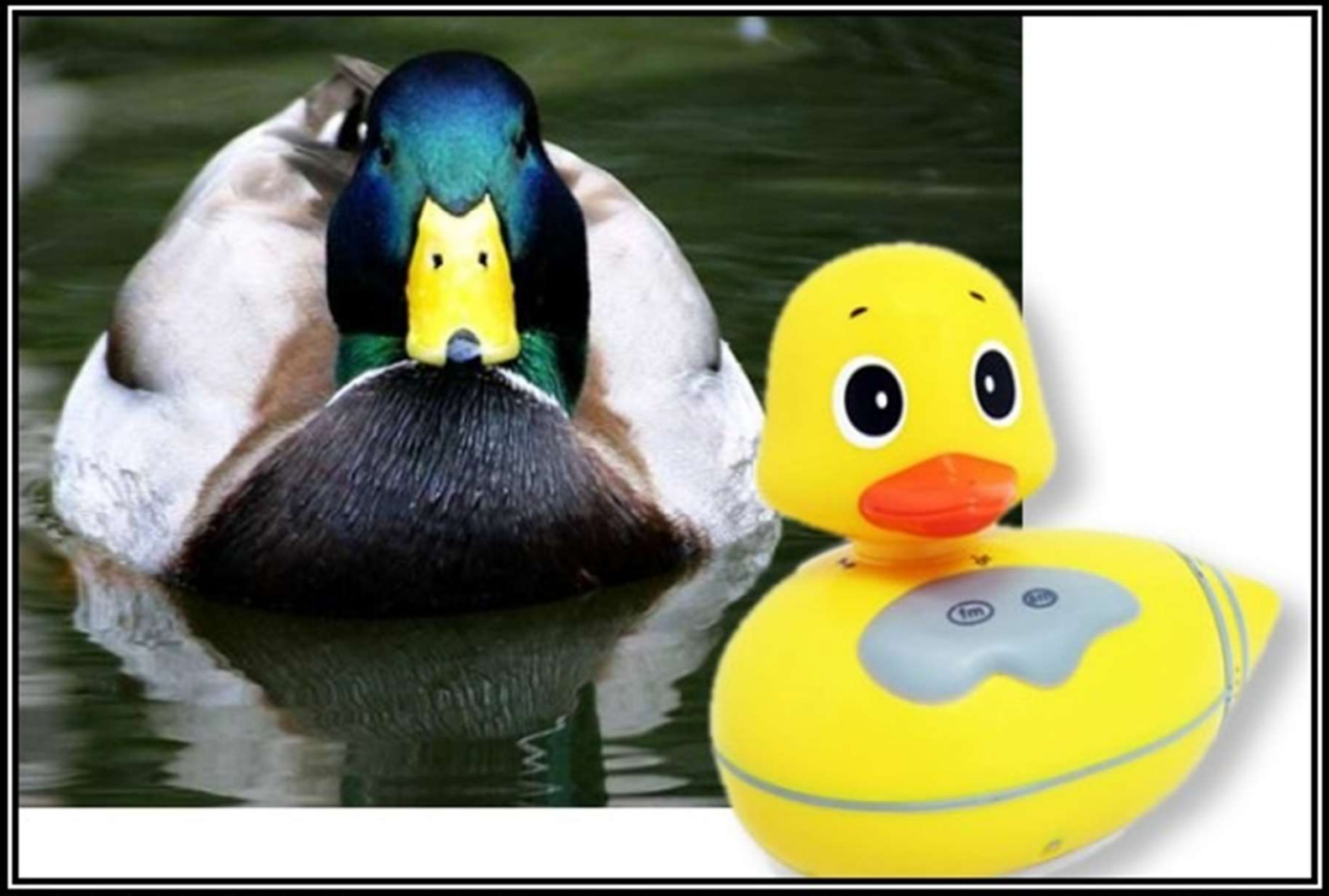
LSP

Liskov Substitution Principle



“If S is a subtype of T, then objects of type T may be replaced with objects of type S, without breaking the program”

"Derived classes must be substitutable for their base classes"



LISKOV SUBSTITUTION PRINCIPLE

If It Looks Like A Duck, Quacks Like A Duck, But Needs Batteries - You Probably Have The Wrong Abstraction

© Derick Bailey

Litt teori – «Regler»

- Contravariance of method arguments in sub class
- Covariance of return types in the sub class
- No new exception types are allowed to be thrown, unless they are sub-types of previously used ones
- Preconditions cannot be strengthened in a subtype
- Postconditions cannot be weakened in a subtype
- Data invariants

Praktisk Oppgave

ISP

Interface Segregation Principle

“many client-specific interfaces are better than one general-purpose interface”

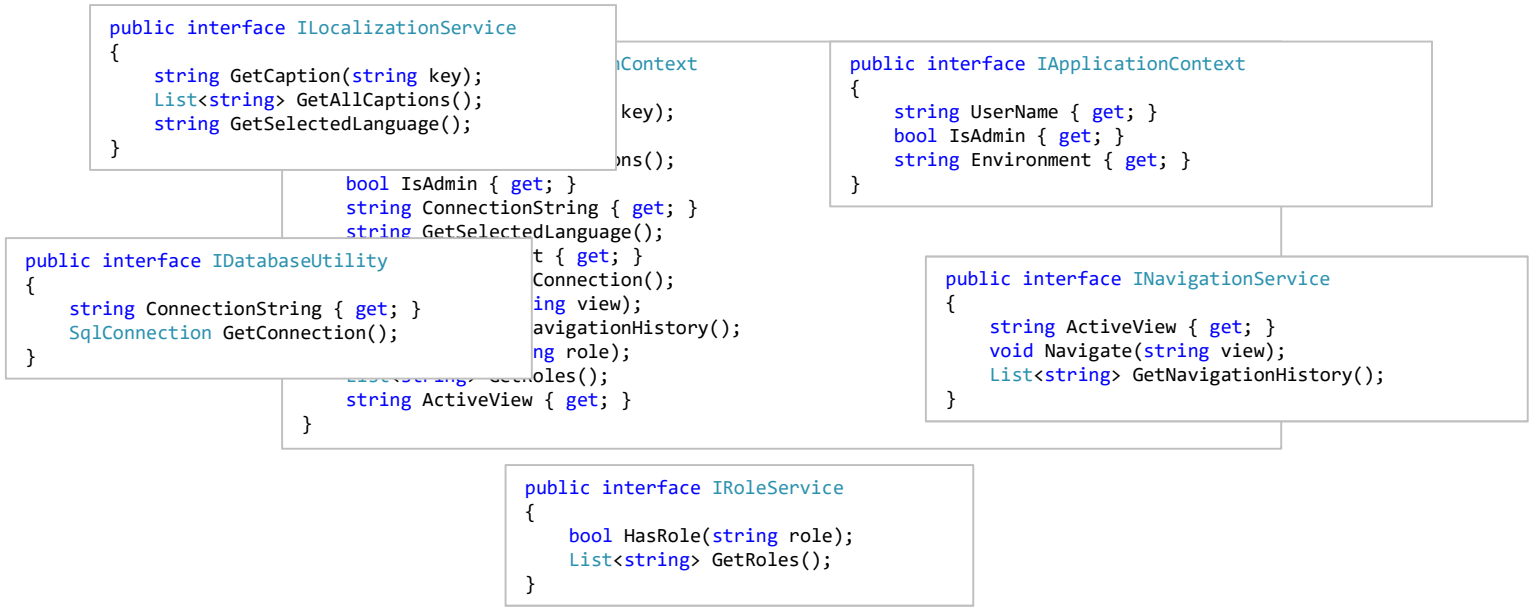
INTERFACE SEGREGATION PRINCIPLE

You Want Me To Plug This In, Where?

© Derick Bailey

Hva prøver vi å løse?

Unngå «God-interfaces» som prøver å gjøre alt, og som lar alle gjøre alt



Hva er fordelene?

- Gir bedre kontroll over hvem som kan gjøre hva
- Det er lettere å implementere små og spesifikke interfacer
- Lettere å bytte ut deler av systemet – trenger ikke å implementere et enormt interface for å erstatte en enkelt feature
- Lettere å teste (enklere å mocke)

Praktisk Oppgave

DIP

Dependency Inversion Principle

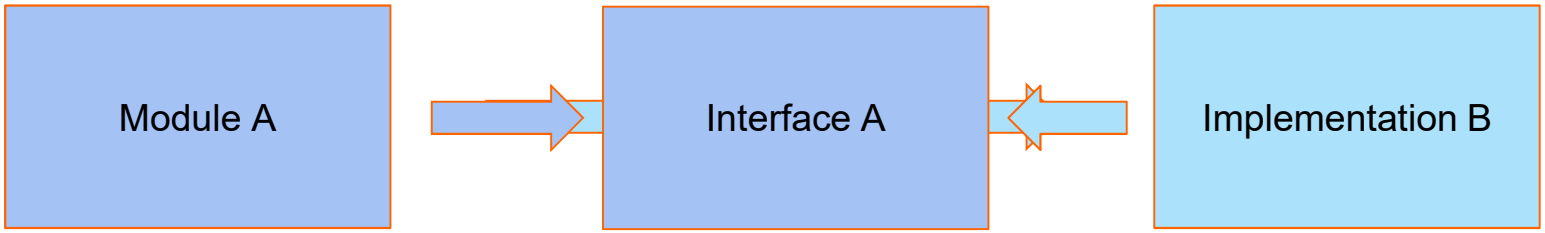
DEPENDENCY INVERSION PRINCIPLE

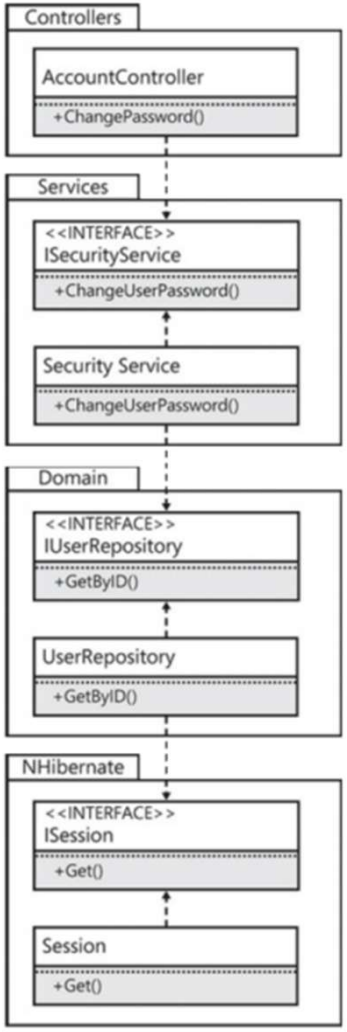
Would You Solder A Lamp Directly To The Electrical Wiring In A Wall?

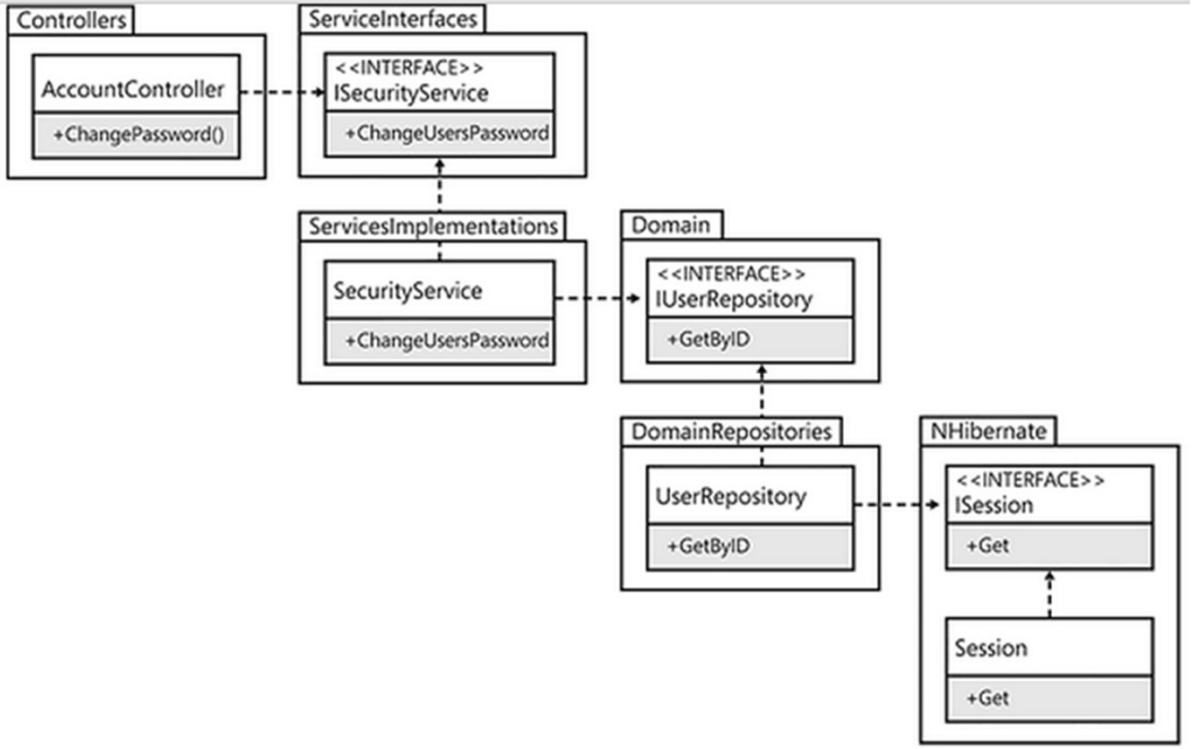
© Derick Bailey

“Depend on abstractions, not on concretions”

“Abstractions should not depend on details. Details should depend on abstractions.”


Module A
Interface A
Implementation B


Controllers
AccountController
+ChangePassword()
Services
<<INTERFACE>>
ISecurityService
+ChangeUserPassword()
Security Service
+ChangeUserPassword()
Domain
<<INTERFACE>>
IUserRepository
+GetByID()
UserRepository
+GetByID()
NHibernate
<<INTERFACE>>
ISession
+Get()
Session
+Get()


Controllers
AccountController
+ChangePassword()
ServiceInterfaces
<<INTERFACE>>
ISecurityService
+ChangeUsersPassword
ServicesImplementations
SecurityService
+ChangeUsersPassword
Domain
<<INTERFACE>>
IUserRepository
+GetByID
DomainRepositories
UserRepository
+GetByID
NHibernate
<<INTERFACE>>
ISession
+Get
Session
+Get

Praktisk Oppgave

Til ettertanke…

- Finn en balanse mellom de ulike akronymene:
  - SOLID, KISS, YAGNI, The rule of three, DRY osv
- Tenk lesbar kode som er lett å vedlikeholde
- Det blir mer kode
- Finn et kompromiss, bestem «hvilken del» du vil gjøre koden SOLID. Statisk (intrinsic) vs dynamisk del.

Ha SOLID i bakhodet.

Det vil hjelpe deg å se «code smells», og vil gi deg et verktøy for hva du kan gjøre for å fikse opp i problemene.


That's all Folks!