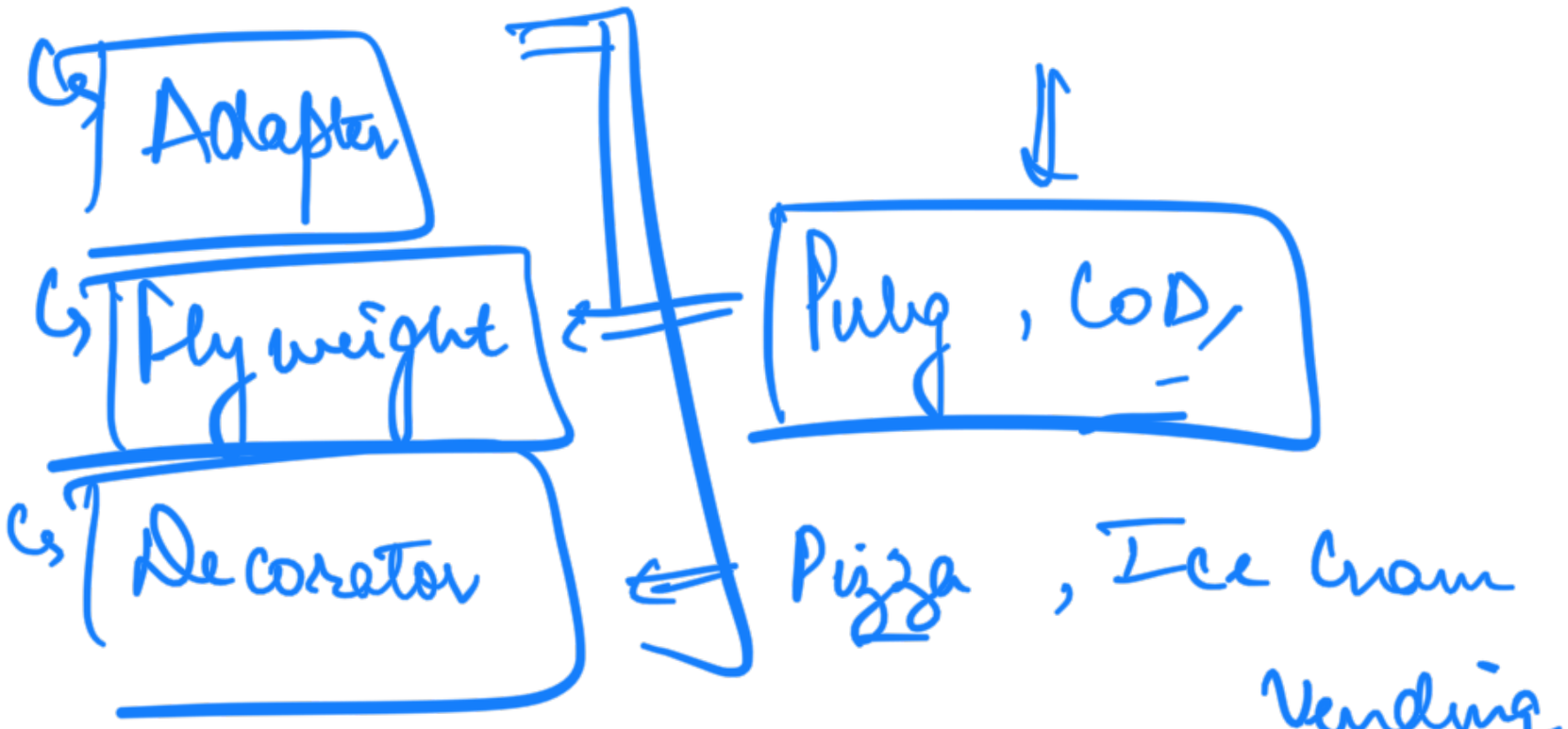
Structural Design Patterns

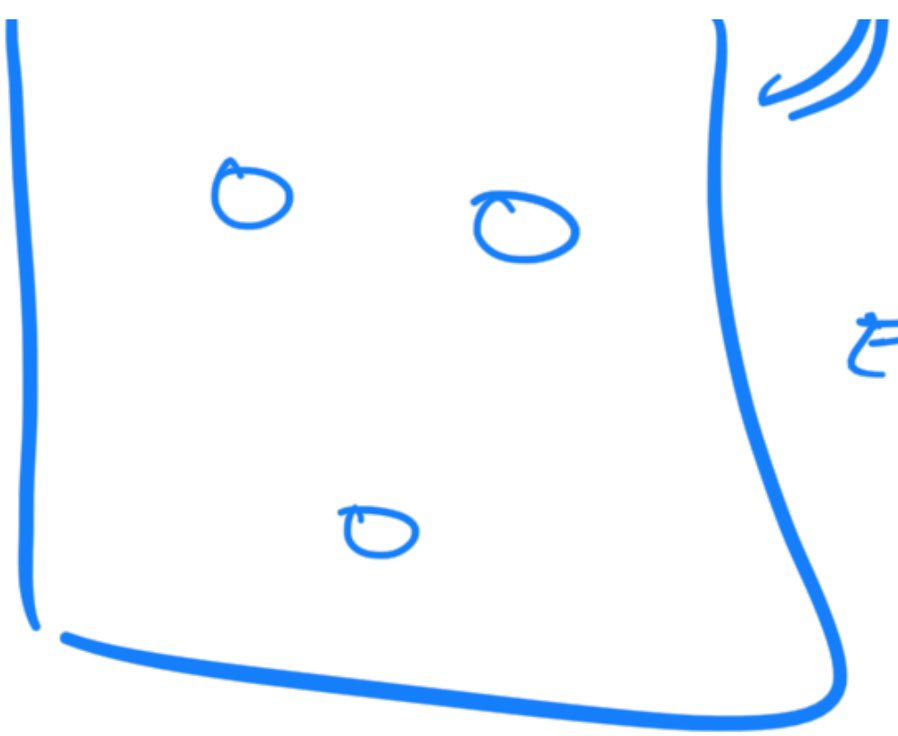


Structural

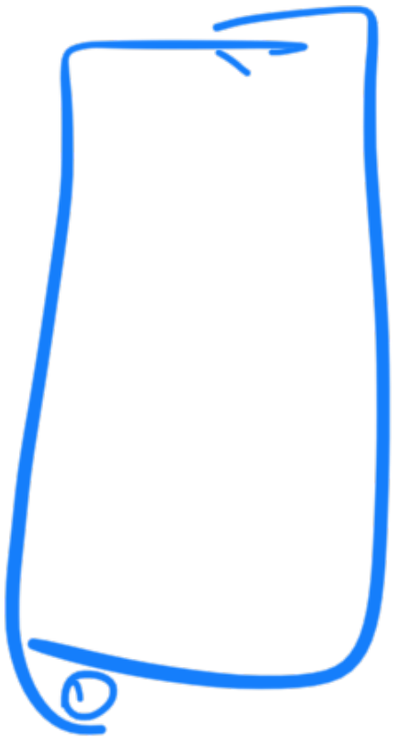
⇒ How to structure the classes / packages

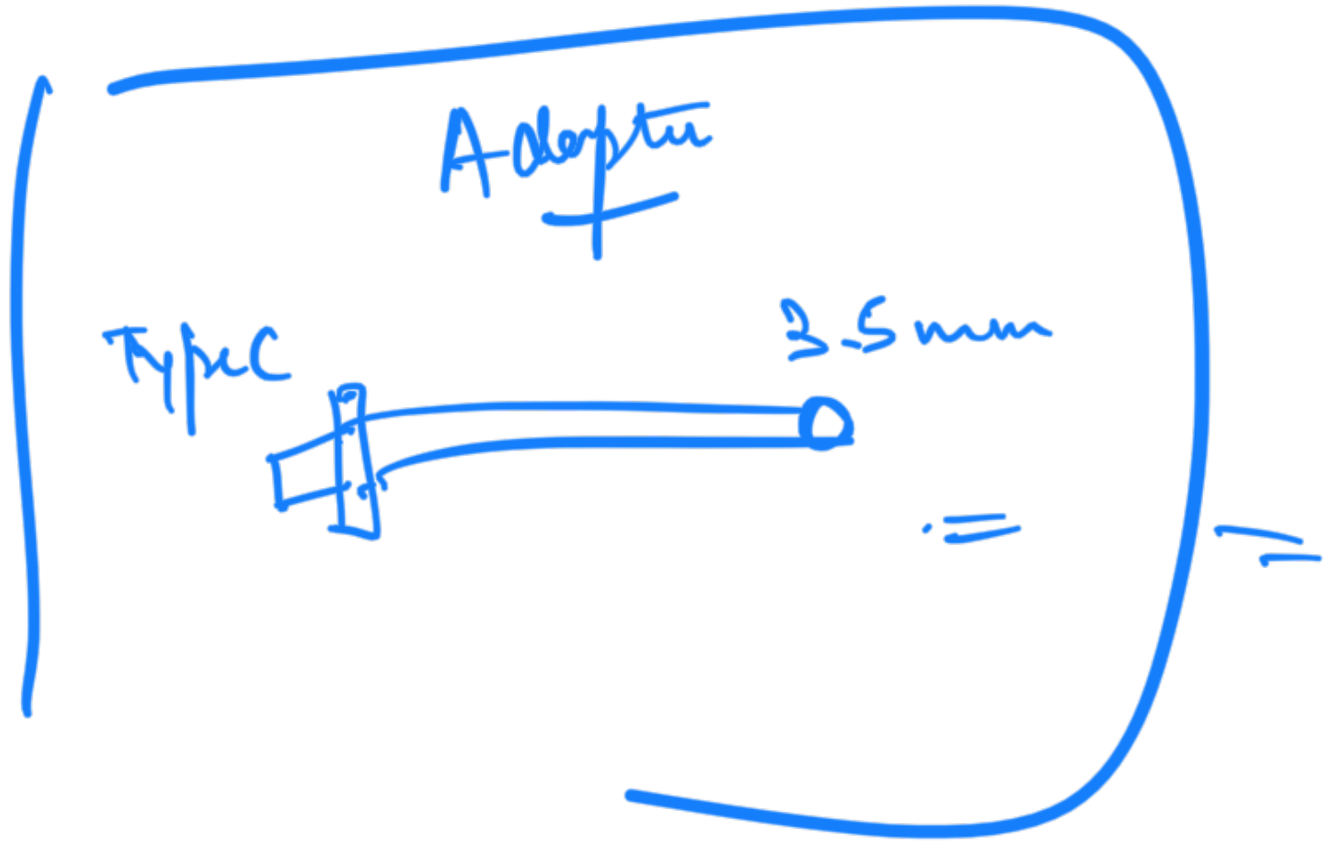
Adapter DP

Electric Plug in diff countries are diff



International
Adapter



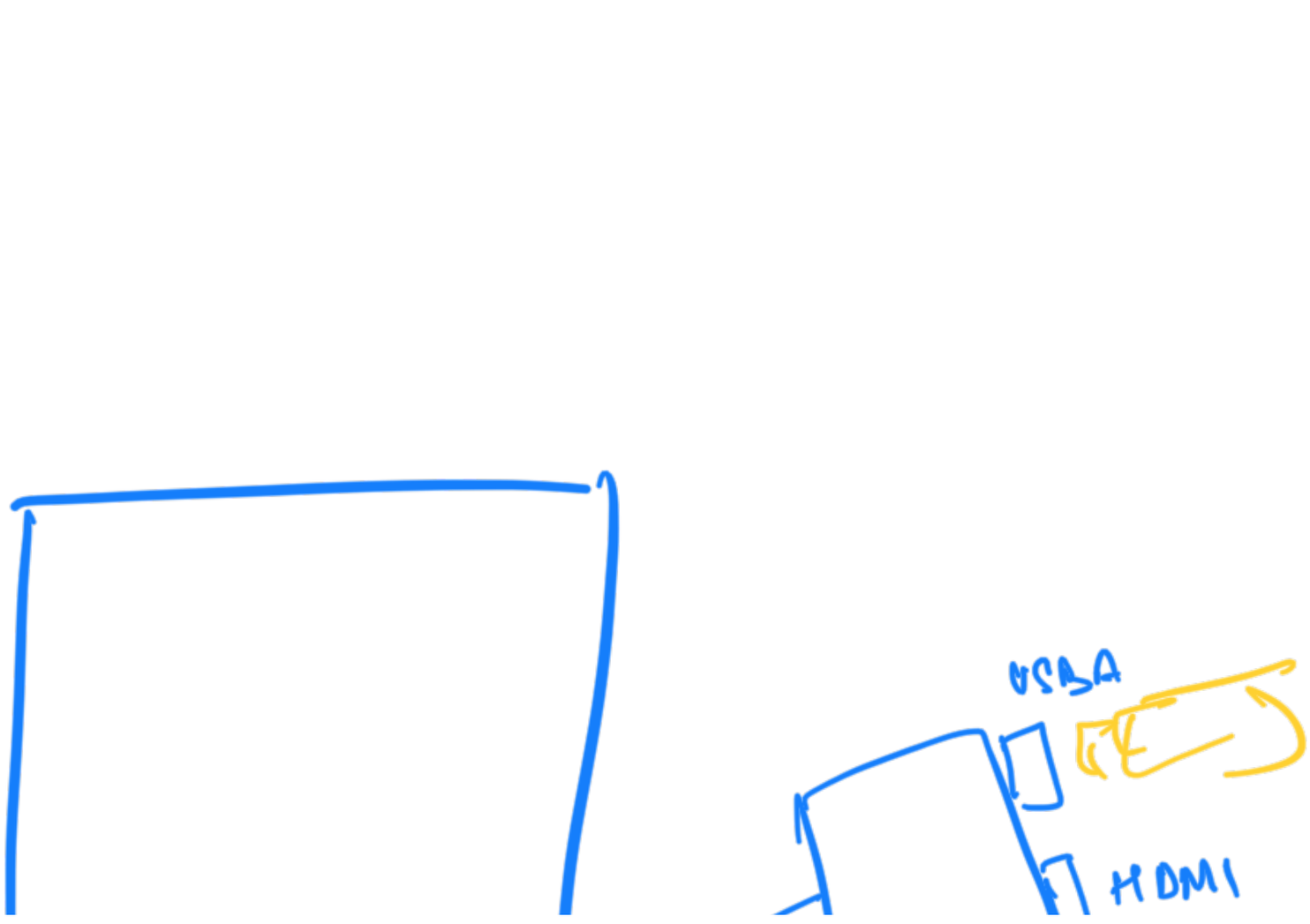


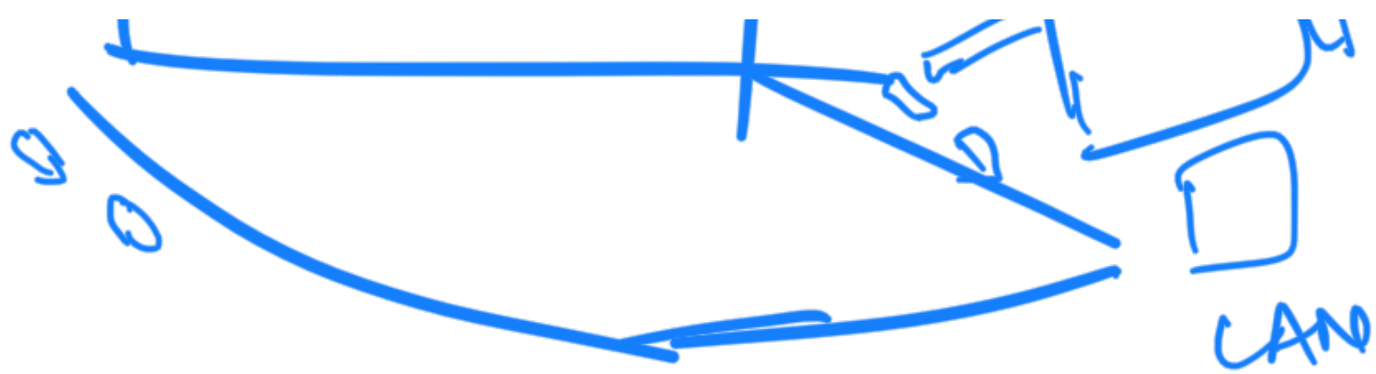
To provide an interface supported by the

host to external objects

iphone

eg Socket





We use an adapter to provide a uniform interface to a diverse set of external dependencies.

Yes

External dependencies in S/W systems

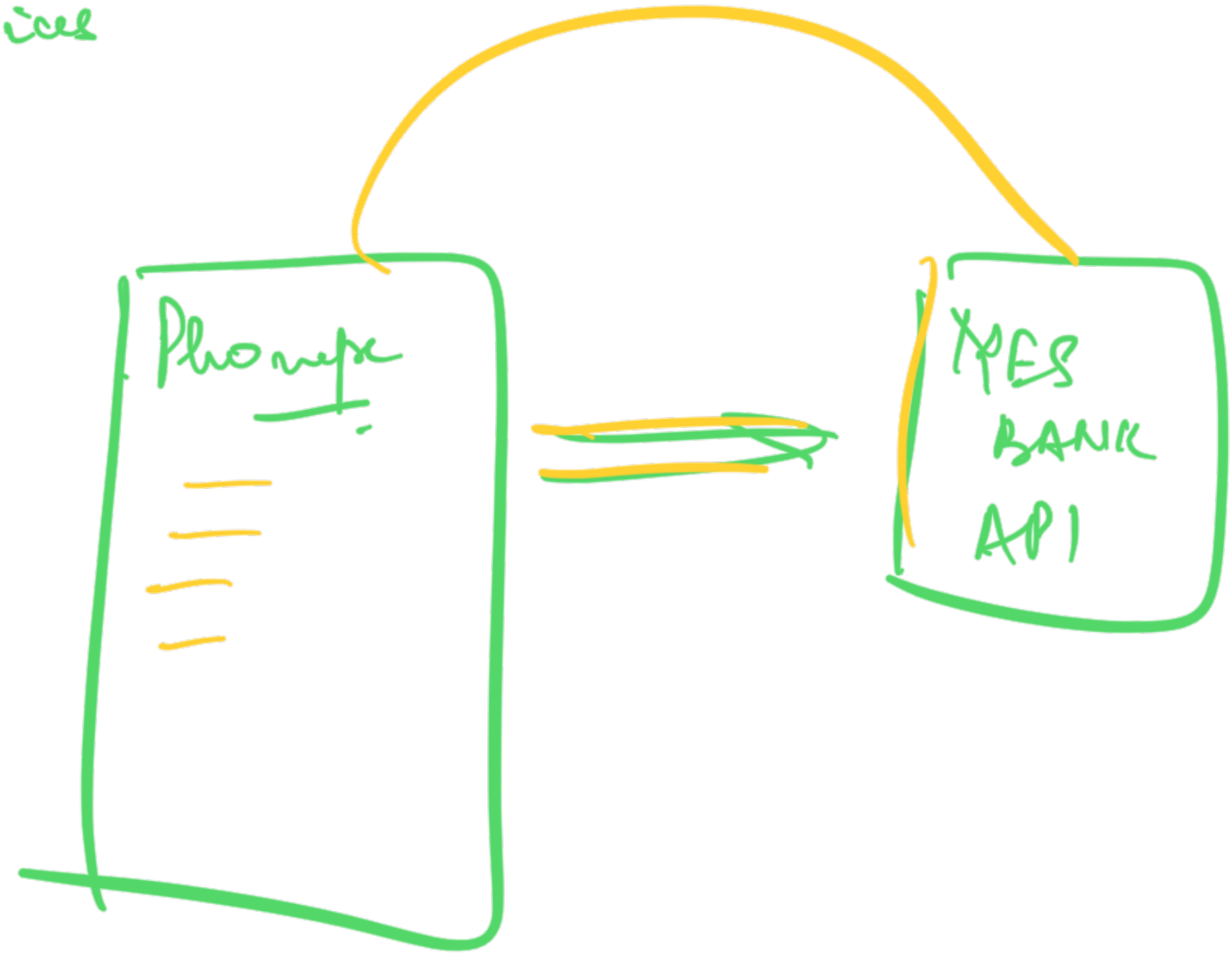
→ APIs (Rest APIs)

→ Libraries

→ Services

① Core Study

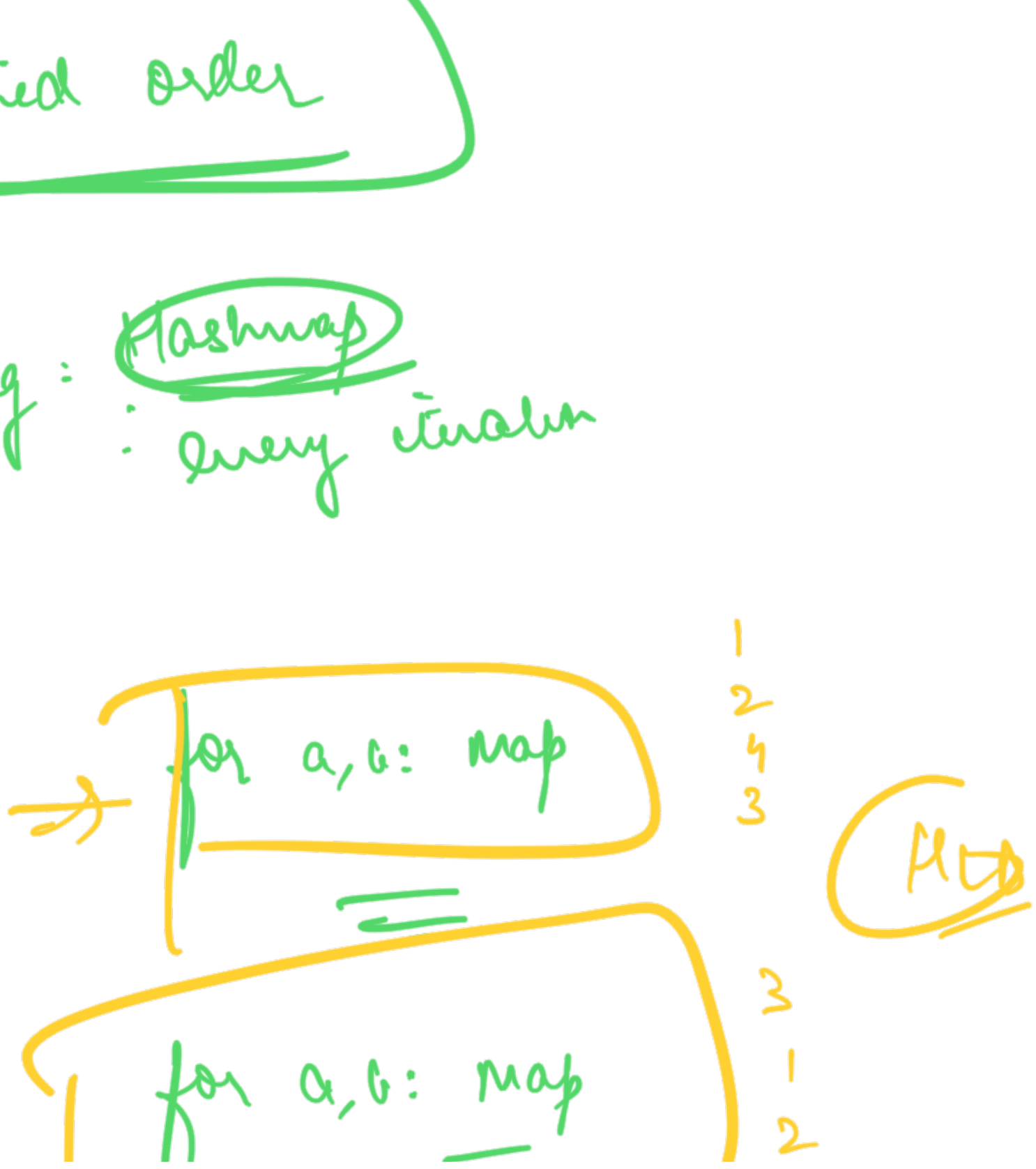
② Dependency



Undetermined order

Golang : Hashmap

: Every iteration



① In future we might want to change provider

② Dependency

Phonepe

DIntro

Only depends on interface

Bank API

Adapter

Adapter interface

Yes Bank API Adapter

Classes

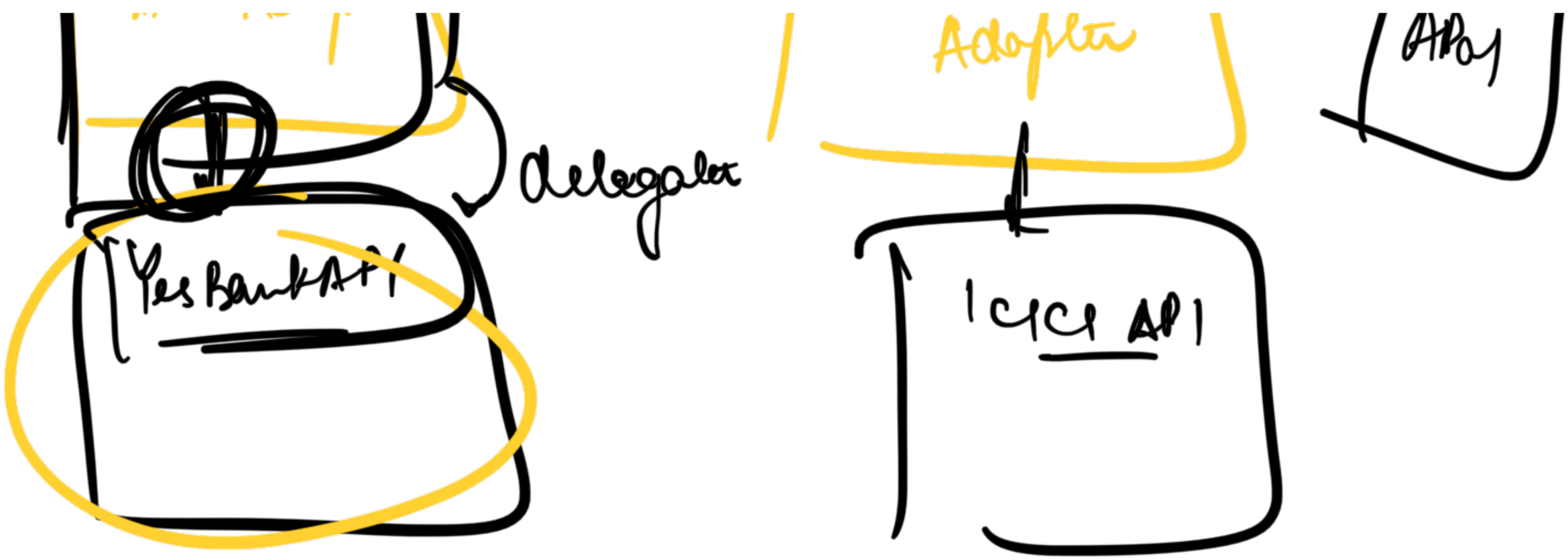
Adap

ICICI API

UBA

Adap

HDFC



List < BankAPI Adapter >

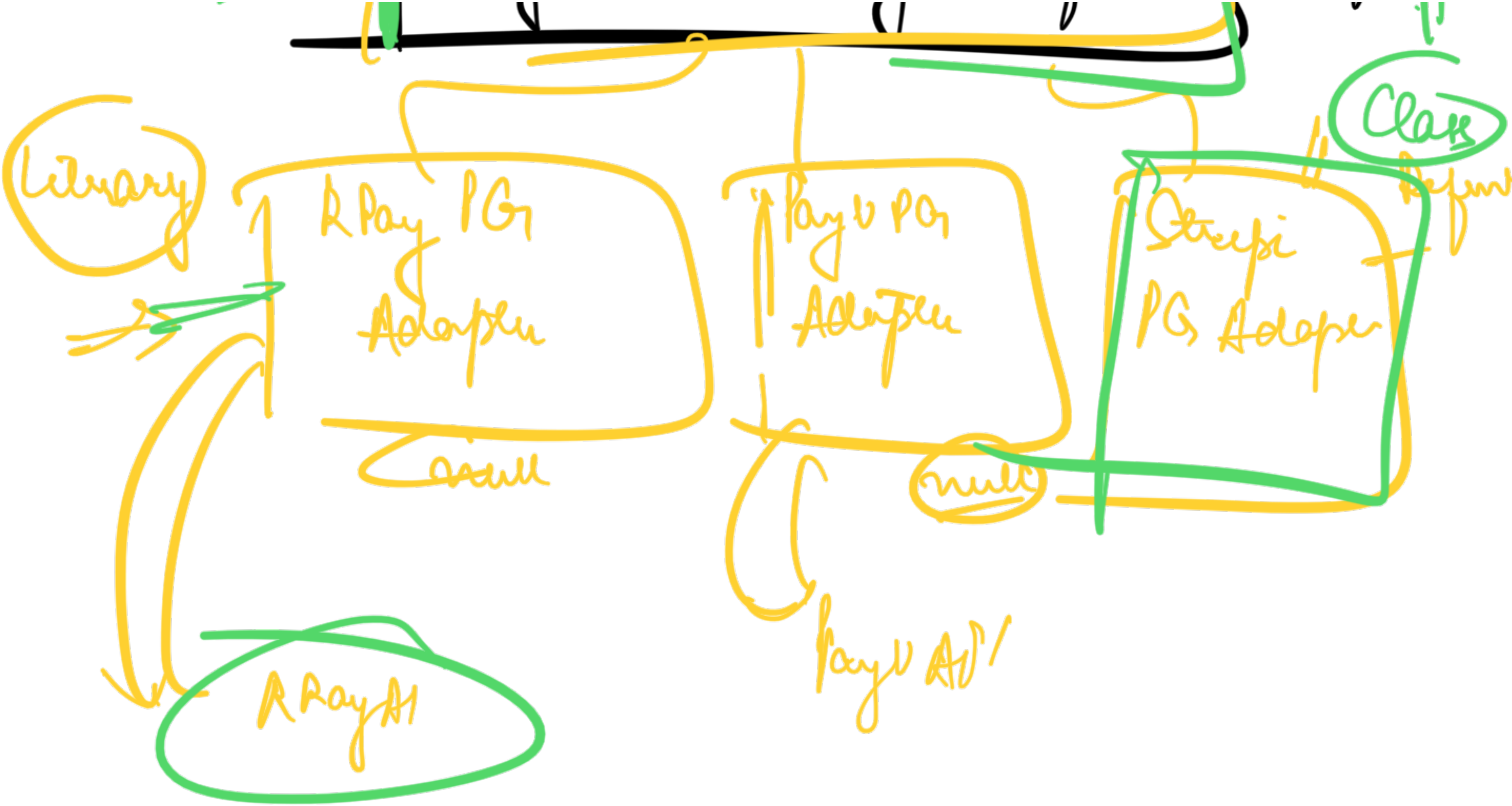
Payu Money

Razorpay

Stripe

I Confit

Payment Gateway interface



Curefit §

Pay Gw Adapter ——

if (adapter.refund != null) {

Map<String, PGAdapter>

pay(_____, pg)

M.get(pg).pay( )

StripeAdapter implements PG,

isRefundable() Refundable{}

Amount

PG gateway = new (Stripe Adapter)

refund (Refundable)

if (gateway is Refundable) {
    refund ((Refundable) gateway)

Default forms

N

Interface

—


A B API
Adapter

Uber

Whenever interacting with any external API | library

Never use it directly

ALWAYS USE VIA AN ADAPTER

→ Dependency Inversion Principle

Buck SMum

Flyweight D!

Size of 1 bullet object

Glw

Bullet

4B → damage

4B → num

8B → Speed

2KB → image

4B → type

8B → weight

16B → coordinates

8B → direction

(5.56 | 9 | 7.62) → € object

Speed

$\approx 360 \times 100 \times 2$

$\approx 720 \times 100$ $\approx$ 72000

$\approx$ 72000 $\times$ 2 KB

$\approx$ 144000 KB

144MB = RAM

Bullet

damage

num

cur_speed

image

type

weight

coordinates

direction

Bullet (

image → 2KB

num → 8B

damage → 8B

type → 4B

weight → 8B

dimension → 16B

→ flying Bullet

cur_speed → 8B

coord → 16B

direction → 8B

Shot By → 8B

Bullet 8B 4kB

Short ✗

2 types of params

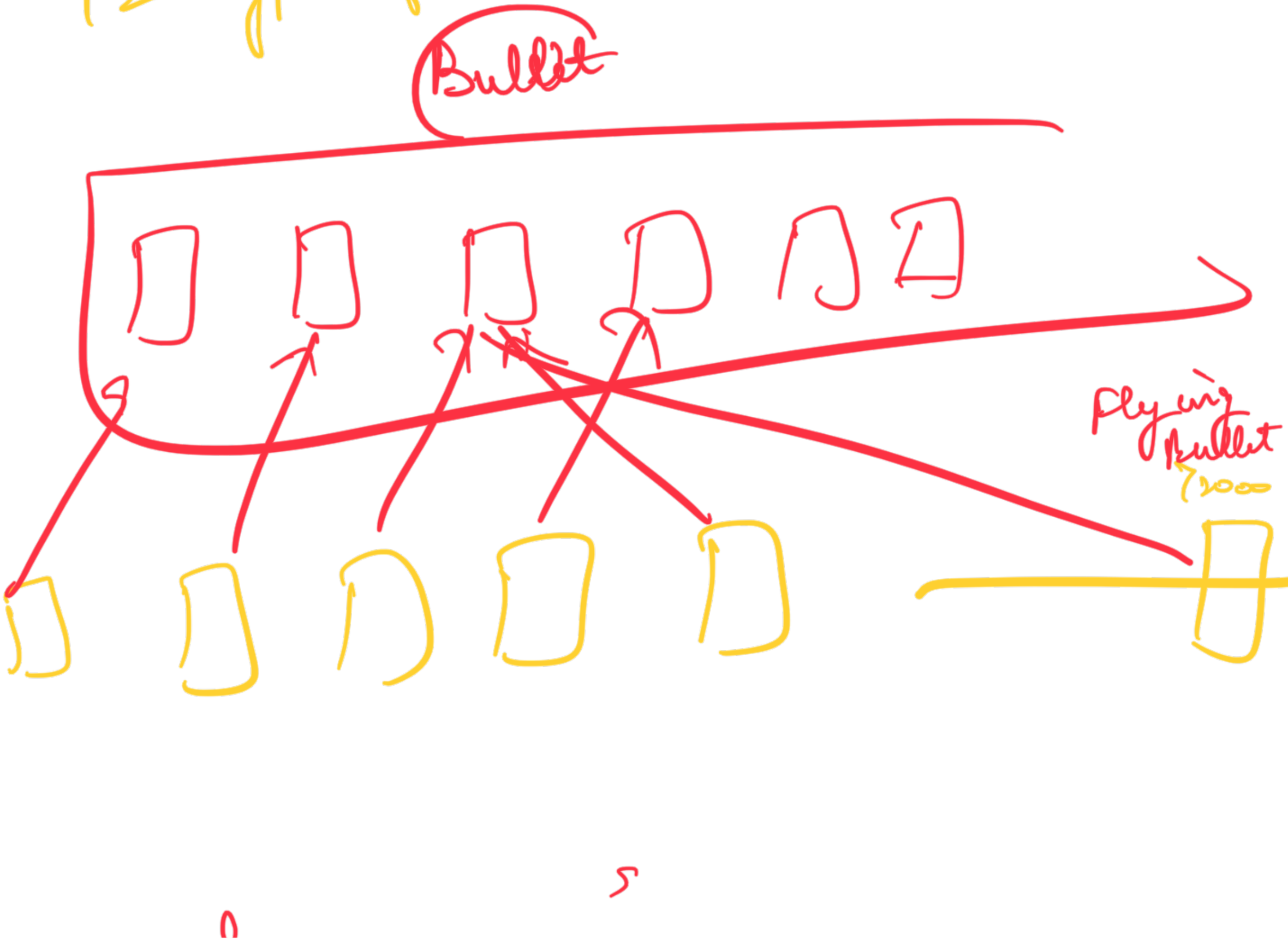
① Extrinsic

⇒ will depend on external params

② Intrinsic

⇒ value not dependent on external params

12 type of bullet



72000K 48 B ≈ 3456 000 B

33 6

≈ 3456 KB

≈ 3.456 MB

+ (12) 24B

≈ 24B

(144MB) → ≈ (3.48 MB)

bullet. get bullet

flying

. getImage()

DP

We have classes

that have 2 type of attr

① intrinsic : Don't change

② extrinsic : Keep on changing
(not same for any)

Consider breaking into 2 class & one

class has a ref...

① Saves a lot of RAM!

API ⇒

/meetings/participants

dp of name 2 participants 2

Adapter DP

→ Connecting with any external/ third-party service

→ We shouldn't depend on interface a 3rd party gave to us

→ Create our own interfaces.

→ Create our own adapter classes

Benefits

→ Protect ourself when we need to

change p...

have to change main code

~~Prototype~~ Flyweight

⇒ When 2 types of values:

(1) extrinsic

(2) intrinsic ⇒ 2MB

⇒ can visibly see the benefits

o = new Object()

10B - 20B

Intrinsic

Extrinsic

100B

20

40B

20B

4B

6BB

Count of

References

12 GB

2 KB

₹ 12000

Premature optimization

① You can quantitatively say that major memory issues are happening due to this

Project Budget

Decorator
behavioral
Strategy
Observer