EXPLORE DDD CONFERENCE

LIVE CODING SESSION

@brunoboucard

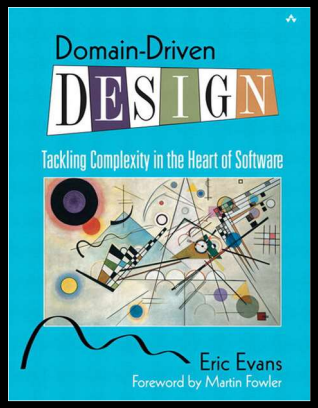
@tpierrain

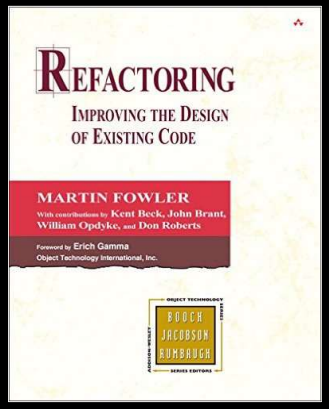
# HOW TO DISTILL CORE DOMAIN FROM A LEGACY APP

42skillz

EXPLORE DDD CONFERENCE

# WE HAVE SOME GIFTS FOR YOU




#EDDD

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# OUR DOMAIN FOR TODAY

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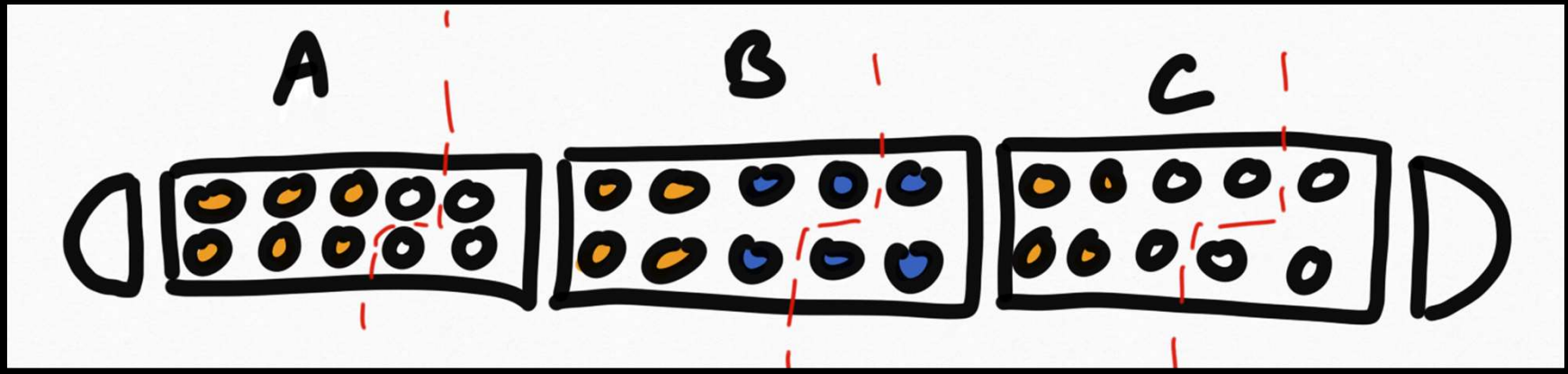
# OUR DOMAIN FOR TODAY




SEAT RESERVATION OPTIMIZATION

# BIZ RULES(*)

- DO NOT RESERVE MORE THAN 70 PERCENT OF A TRAIN CAPACITY
- ALL SEATS OF A RESERVATION MUST BE IN THE SAME COACH

(*) FROM EMILY BACHE'S TRAIN RESERVATION KATA

# SOME WORDS FROM OUR DOMAIN EXPERT

- TRAIN
- TRAIN ID
- SEATS
- COACHES
- RESERVATION ATTEMPT
- FULFILLED
- TO BOOK
- BOOKING REFERENCE
- RESERVATION
- RESERVATION FAILURE
- ...

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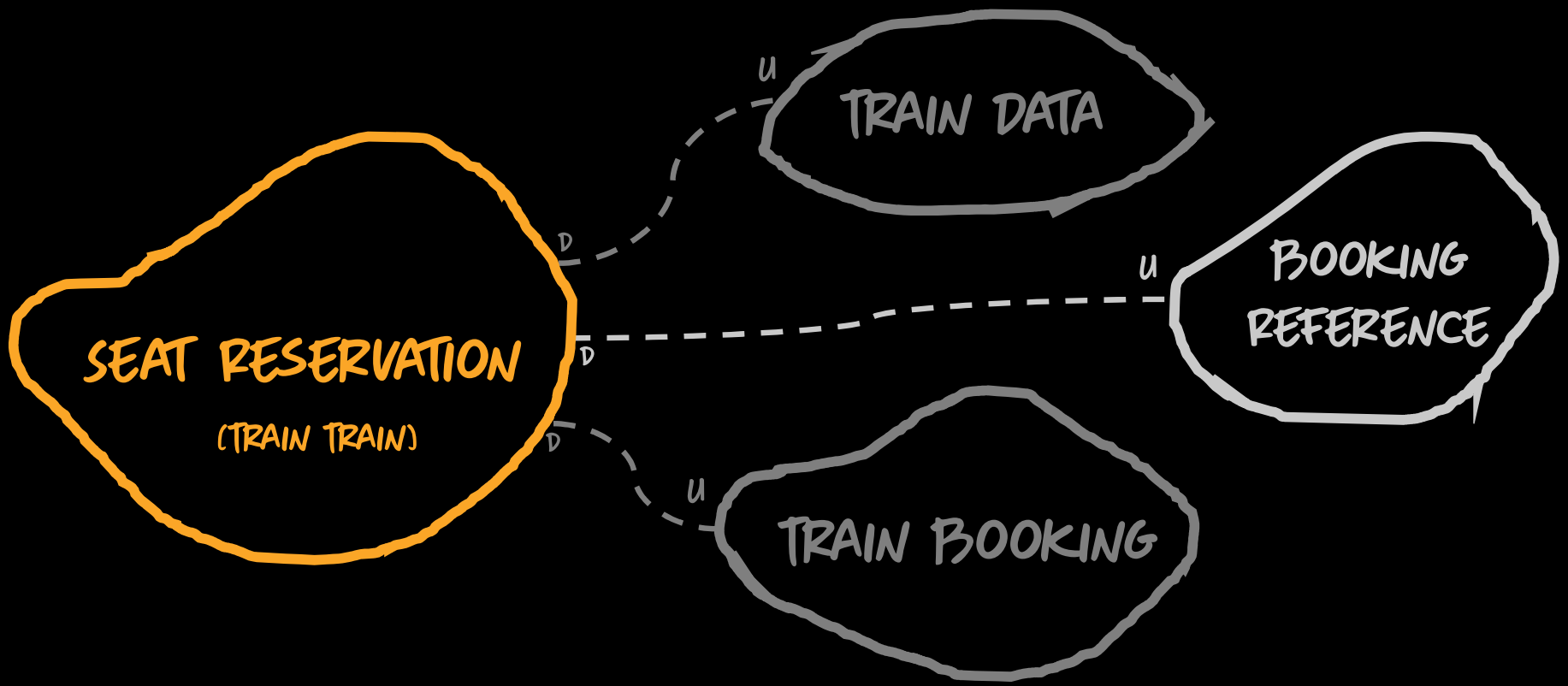
# MANY BOUNDED CONTEXTS...



# DEMO!

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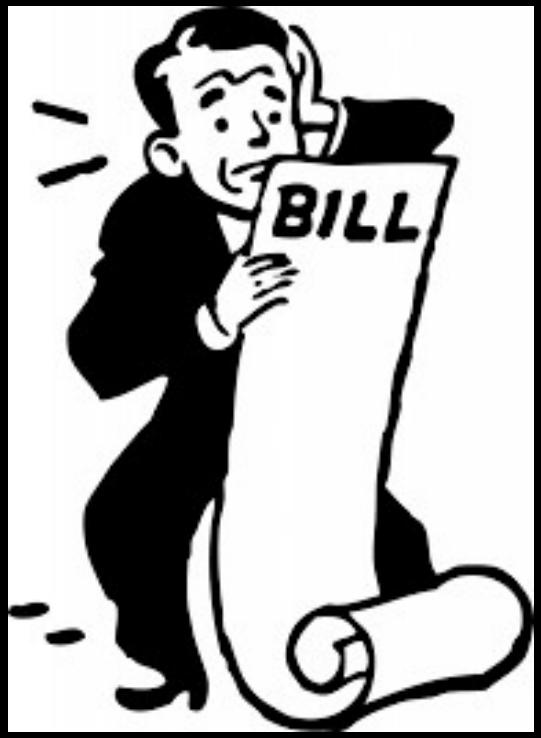


# WE HAVE A PROBLEM...

## RECURRENT PENALTIES FROM THE OPERATOR

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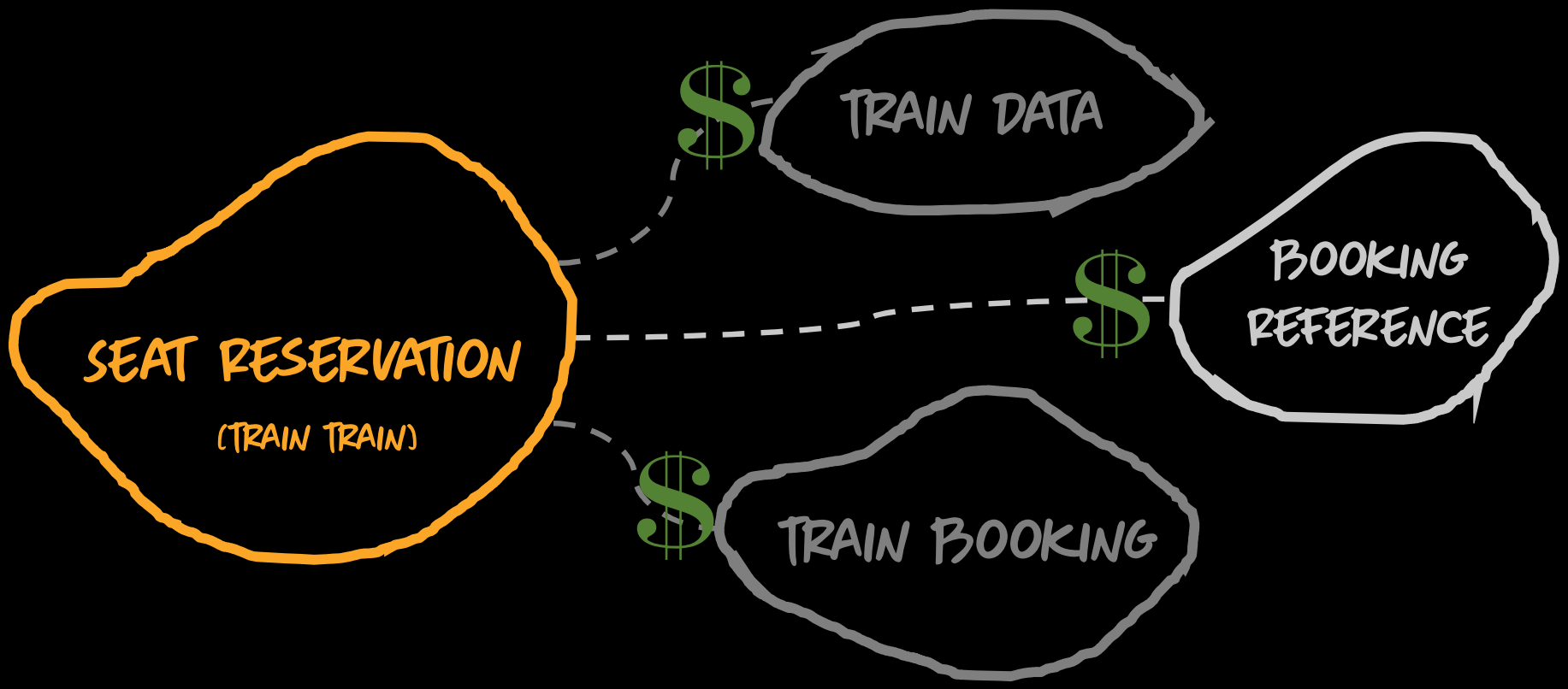
# MANY BOUNDED CONTEXTS...



# BUT BEFORE TOUCHING ANY LEGACY CODE...

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# AND IF YOU DON'T LIKE TO LIVE DANGEROUSLY...

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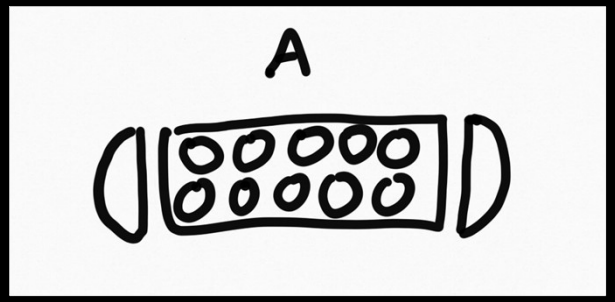
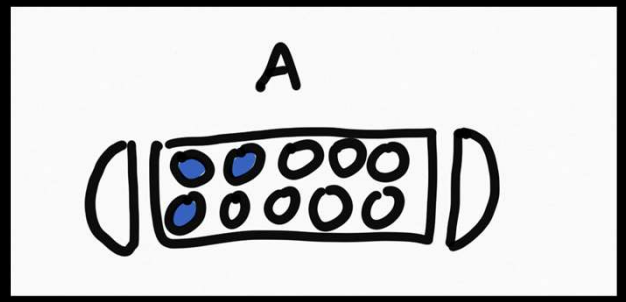
# TEST 1 - SIMPLE RESERVATION




I WANT 3 SEATS

→




## RESULT


```
{"train_id": "9043-2017-06-07", "booking_reference": "75bcd15", "seats": ["1A", "2A", "3A"]}
```

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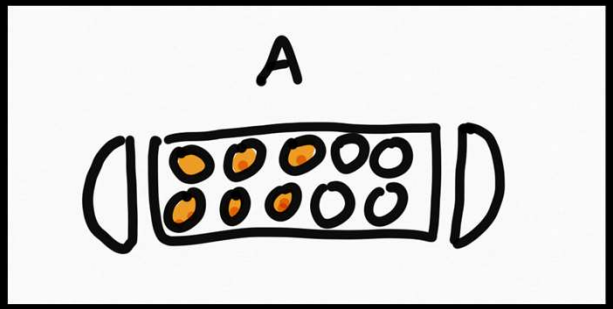
# TEST 2 – "70 PERCENT MAX" RULE




I WANT 2 SEATS

→

CAN'T EXCEED 70 PERCENT OF TRAIN CAPACITY!

## RESULT

{"train_id": "1434-2017-06-07", "booking_reference": "", "seats": []}

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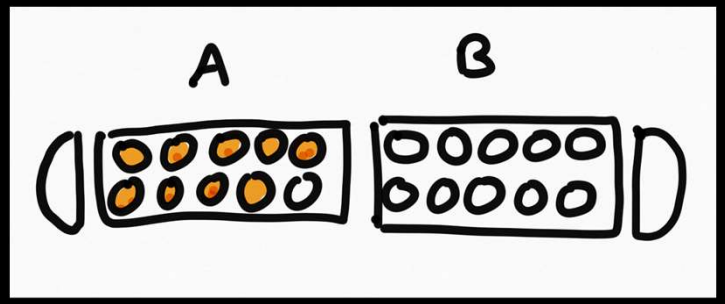
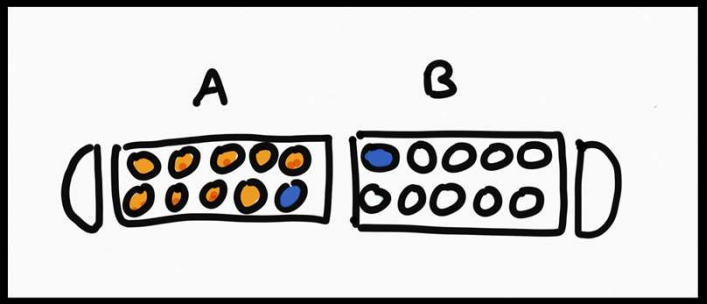
# TEST 3 – "ALL SEATS IN THE SAME COACH" RULE




I WANT 2 SEATS

→




SEPARATED!

BUG!

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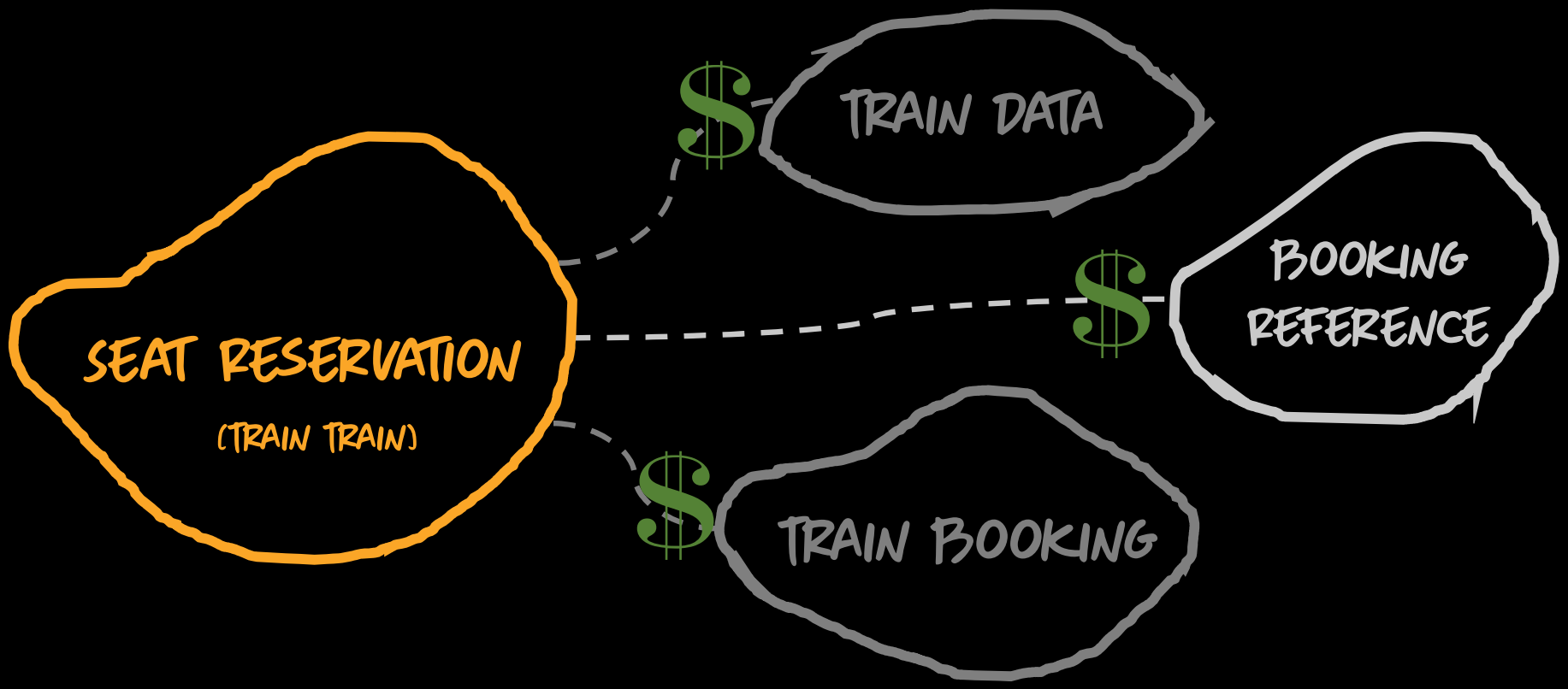
# MANY BOUNDED CONTEXTS...



# OUR GOAL FOR TODAY

LET'S FIX THAT BUG!

# HOW DO WE START?

WHAT WOULD YOU RECOMMEND?

NEVER REFACTOR A LEGACY CODE WITHOUT SAFETY NET!

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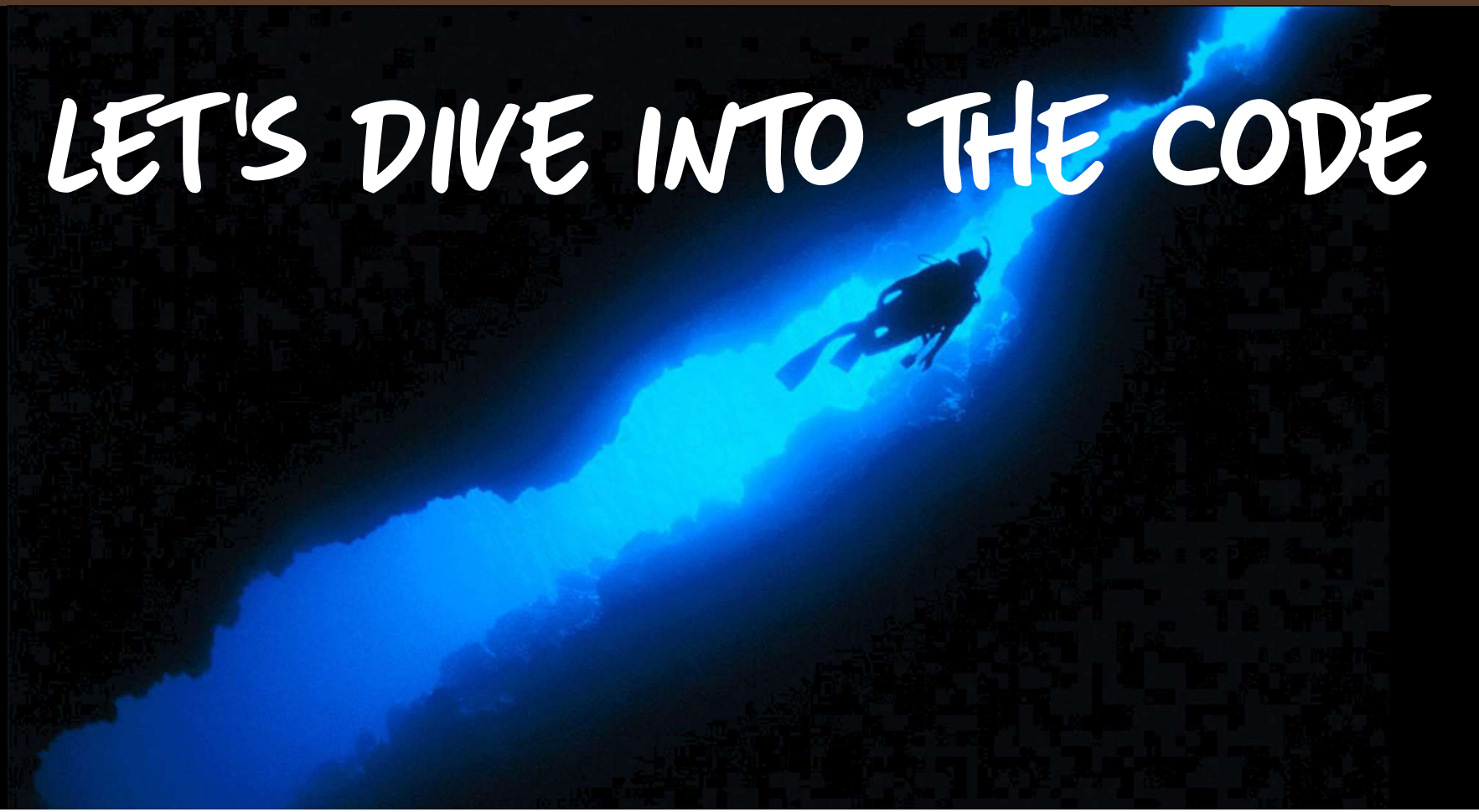
# LET'S DIVE INTO THE CODE



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CONFERENCE

# EXTRACT & MOVE

## CLASS A

..... ..... ........
.....
.....
.....
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.....

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..
.....
.....

## CLASS B

..
.....
.....
.....

EXPLORE DDD CONFERENCE

# EXTRACT & MOVE

## CLASS A

..... ..... .....
.....
.....
.....
.....
.....

EXTRACT CODE

.....
.....
..
.....
.....

## CLASS B

..
.....
.....
.....

# EXTRACT & MOVE

## CLASS A

..... ..... .....
.....

.....
.....
..
.....
.....

.....
.....
.....
.....

METHOD EXTRACTED

## CLASS B

..
.....
.....
.....

EXPLORE DDD CONFERENCE

# EXTRACT & MOVE

## CLASS A

..... ..... .....
.....

.....
.....
..
.....
.....

.....
.....
.....
.....

MOVE METHOD

## CLASS B

..
.....
.....
.....

EXPLORE DDD CONFERENCE

# EXTRACT & MOVE

## CLASS A

..... ..... ........
.....

.....
.....
..
.....
.....

## CLASS B

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.....
.....
.....

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.....
.....
.....

METHOD MOVED

# EXTRACT & MOVE

## CLASS A

..... ..... .....
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.....

## CLASS B

..
.....
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.....

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.....

EXPLORE DDD
CONFERENCE

# ALREADY HEARD ABOUT AGGREGATES?

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# AGGREGATE

-

COLLECTION OF OBJECTS

( ENTITIES AND VALUE TYPES )

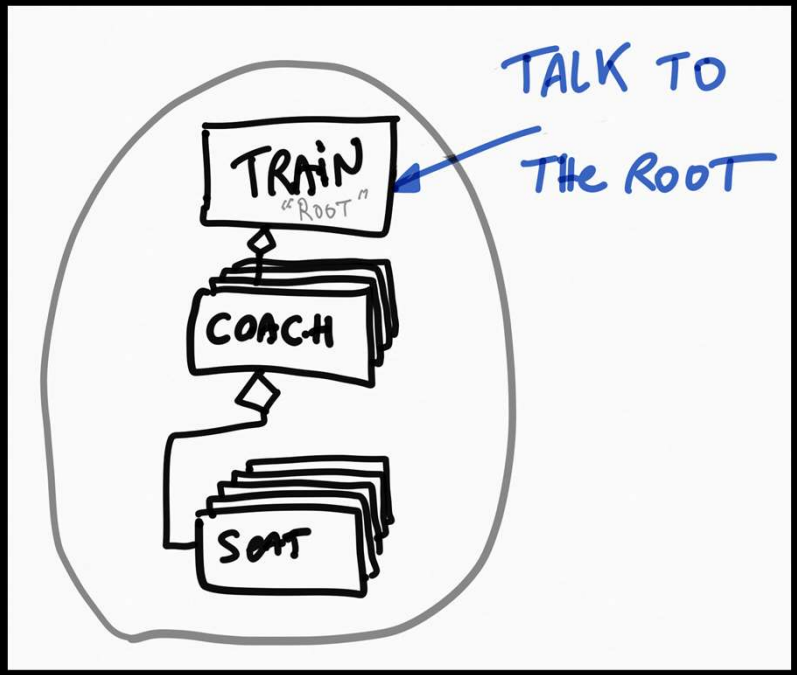
TREATED AS A CONCEPTUAL WHOLE

# AGGREGATES IN HERE?

EXPLORE DDD CONFERENCE

# AGGREGATES

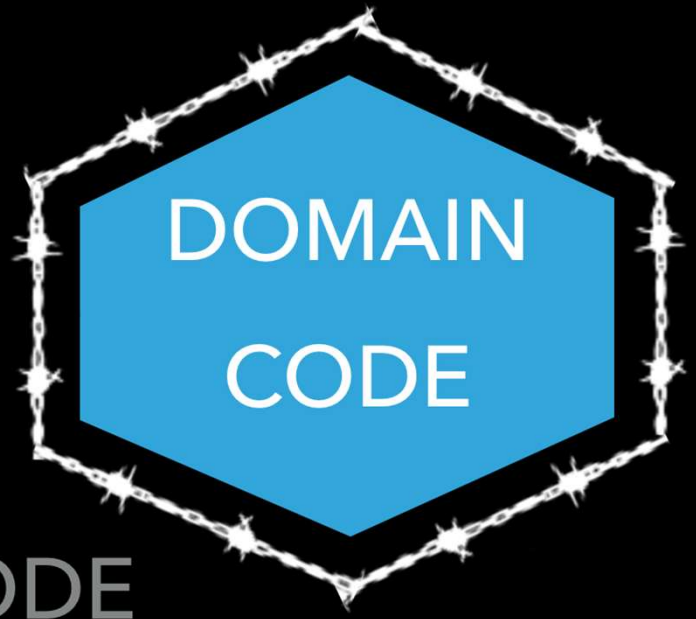
AGGREGATES NEEDS INVARIANTS



EXPLORE DDD
CONFERENCE

EXPLORE DDD CONFERENCE

# HEXAGONAL ARCHITECTURE FTW!



INFRA CODE

(Adapters DMZ)

# HEXAGONAL ARCHITECTURE?

EXPLORE DDD CONFERENCE

# HEXAGONAL ARCHITECTURE

# ALISTAIR COCKBURN

MANY BENEFITS

# HEXAGONAL ARCHITECTURE

EMBRACE CHANGE
PROTECT YOUR DOMAIN CODE
ENFORCE TESTABILITY

EXPLORE DDD CONFERENCE

## MANY BENEFITS

# HEXAGONAL ARCHITECTURE

EMBRACE CHANGE

TODAY >> PROTECT YOUR DOMAIN CODE << TODAY

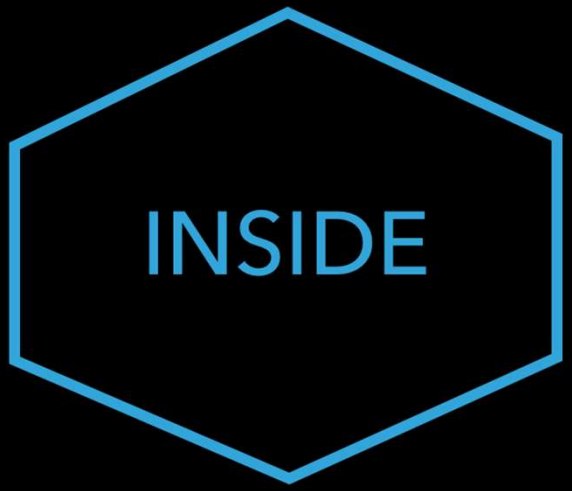
ENFORCE TESTABILITY

# HEXAGONAL ARCHITECTURE

HOW?

EXPLORE DDD CONFERENCE

# HEXAGONAL ARCHITECTURE




OUTSIDE

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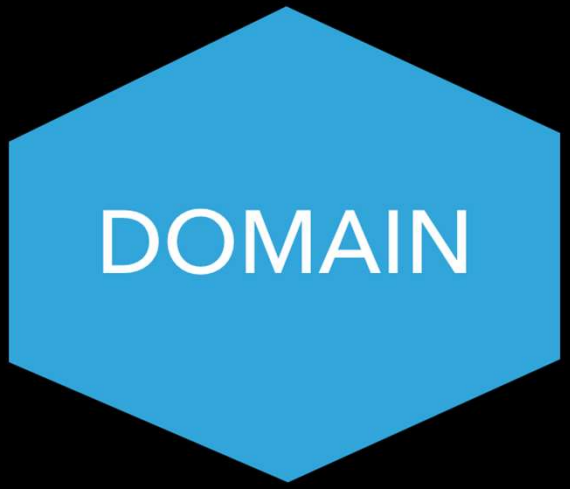
# HEXAGONAL ARCHITECTURE




INFRA

(HTTP, Db, MoM,...)

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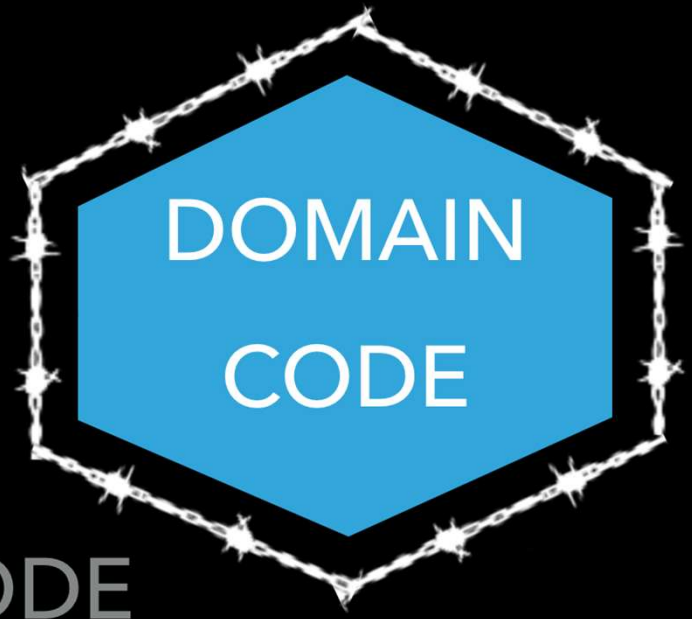
# HEXAGONAL ARCHITECTURE

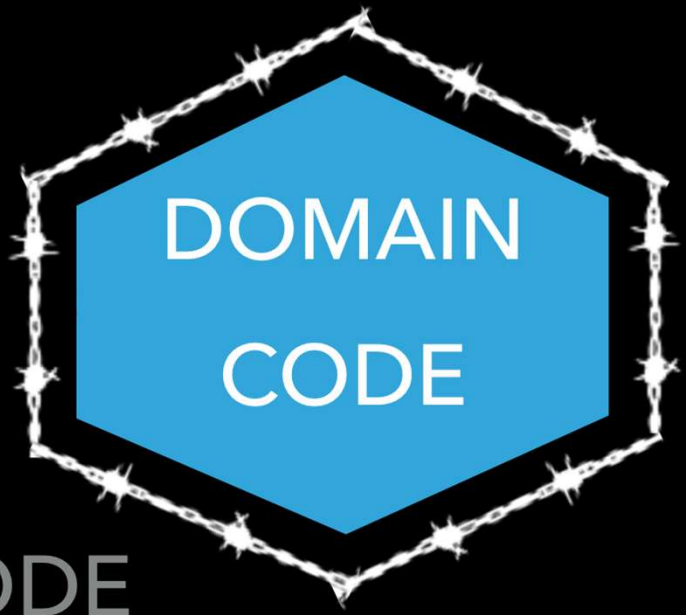


INFRA CODE

(Adapters DMZ)

EXPLORE DDD CONFERENCE

# HEXAGONAL ARCHITECTURE



INFRA CODE

>> playground <<

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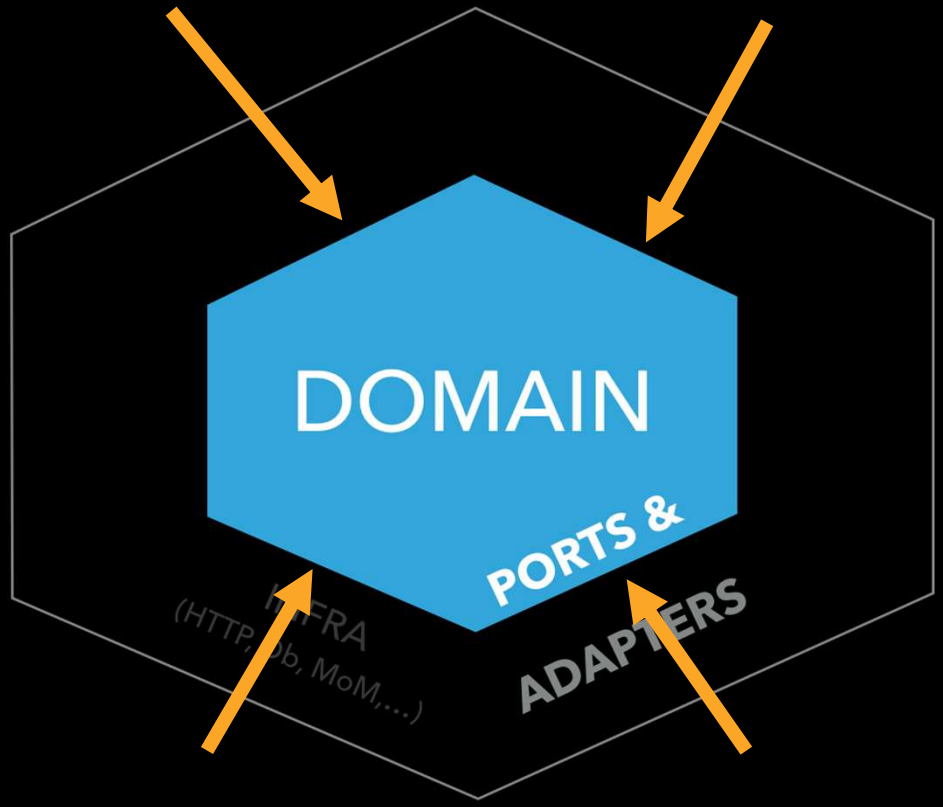
# HEXAGONAL ARCHITECTURE

DEPENDENCIES ALWAYS TOWARD THE INSIDE




~~DIP PRINCIPLE~~

"CONFIGURABLE DEPENDENCIES"

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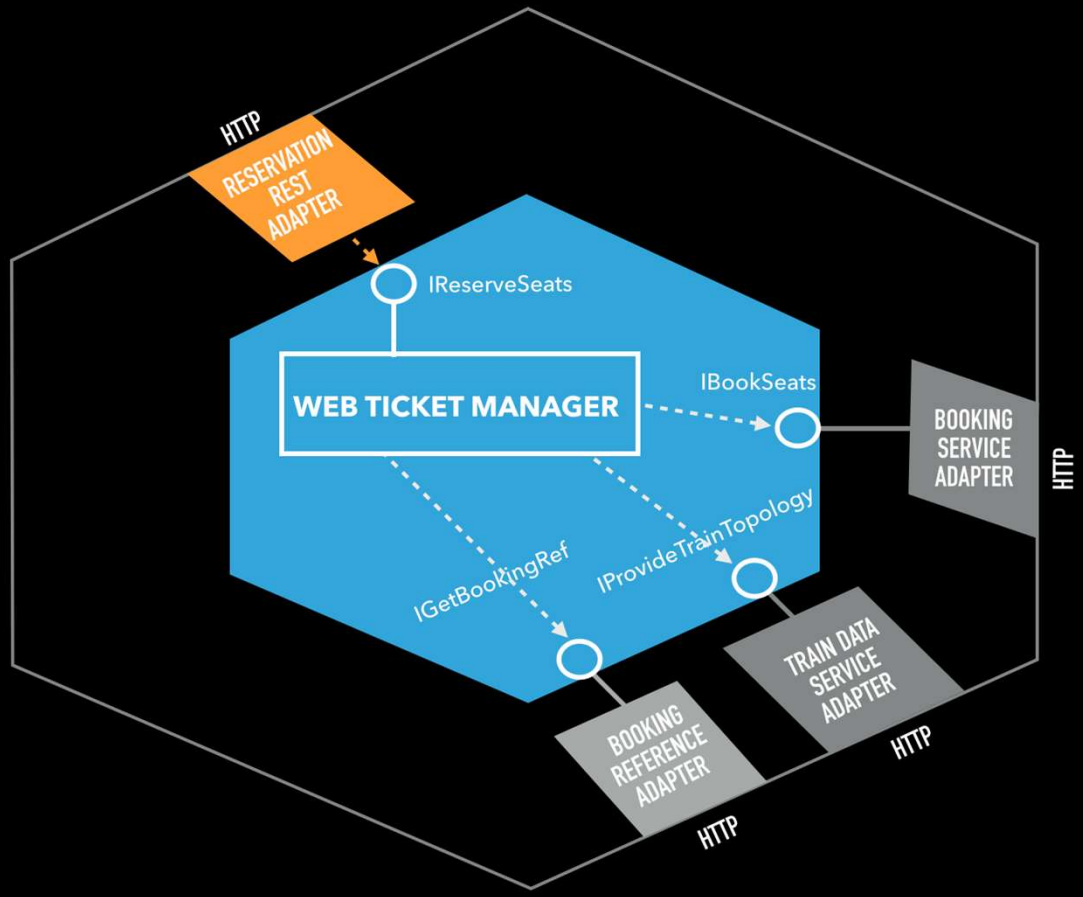
# HEXAGONAL ARCHITECTURE

PORTS IN THE DOMAIN




ADAPTERS IN THE INFRA

HEXAGONAL ARCHITECTURE

# PORTS AND ADAPTERS

## TO GO IN
## TO GO OUT

# A 3 STEPS INITIALIZATION

## THE "KEY RING" METAPHOR

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# HEXAGONAL ARCHITECTURE

1. INSTANTIATE THE "I NEED TO GO OUT" ADAPTERS

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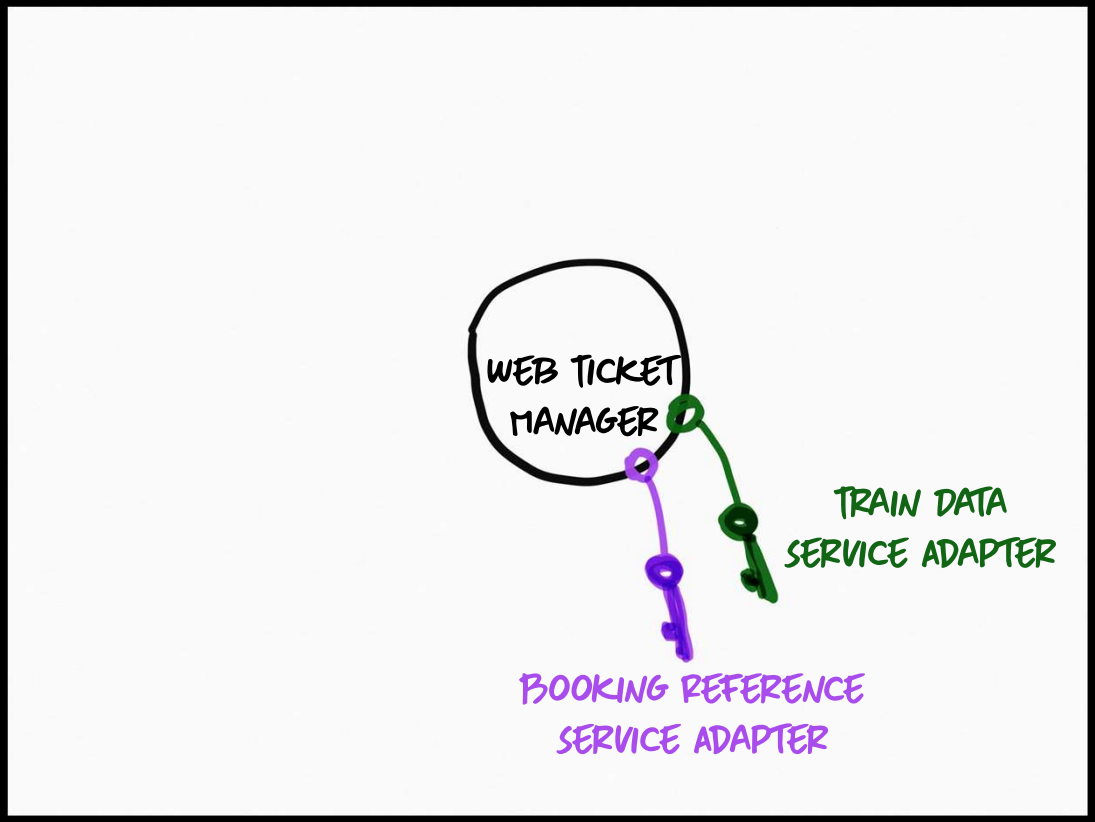
# HEXAGONAL ARCHITECTURE

## 2. INSTANTIATE THE HEXAGON



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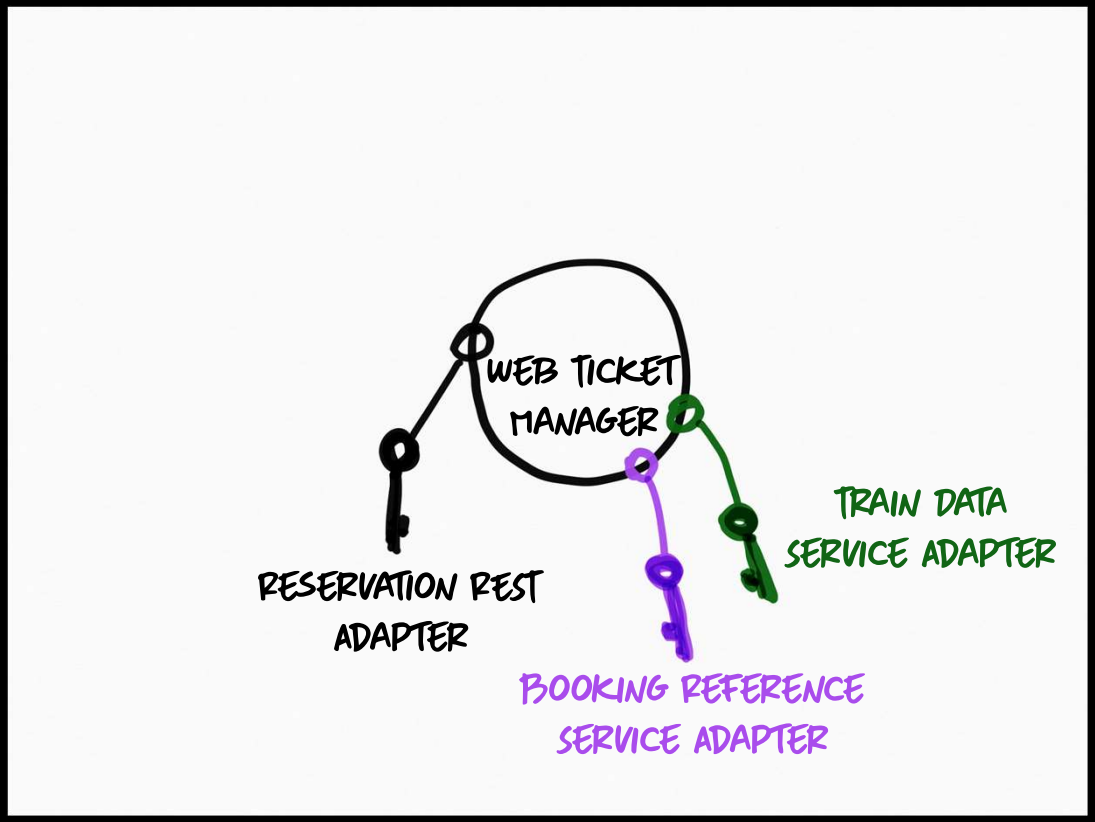
# HEXAGONAL ARCHITECTURE

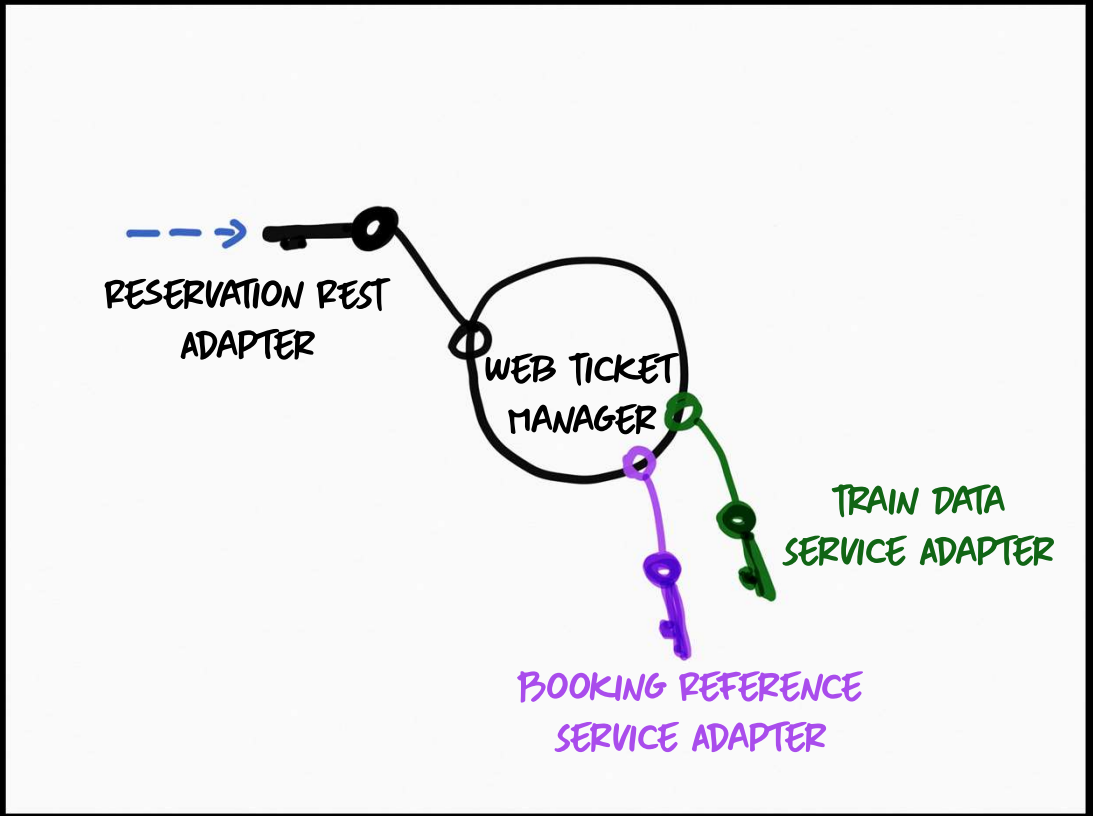
## 3. INSTANTIATE THE "I NEED TO ENTER" ADAPTERS



EXPLORE DDD CONFERENCE

# HEXAGONAL ARCHITECTURE

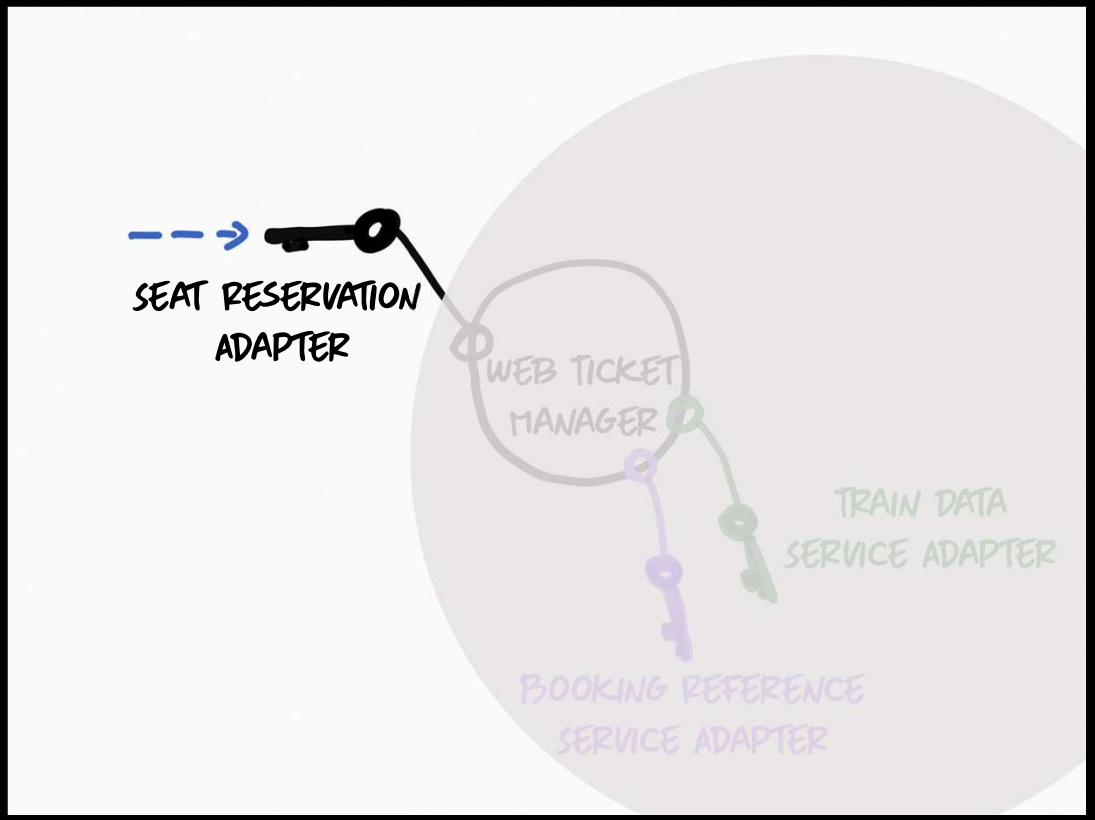
ALL YOU KEEP IN "YOUR HAND"



EXPLORE DDD CONFERENCE

# HEXAGONAL ARCHITECTURE

ALL YOU KEEP IN "YOUR HAND"



# TO PUT IT DIFFERENTLY...

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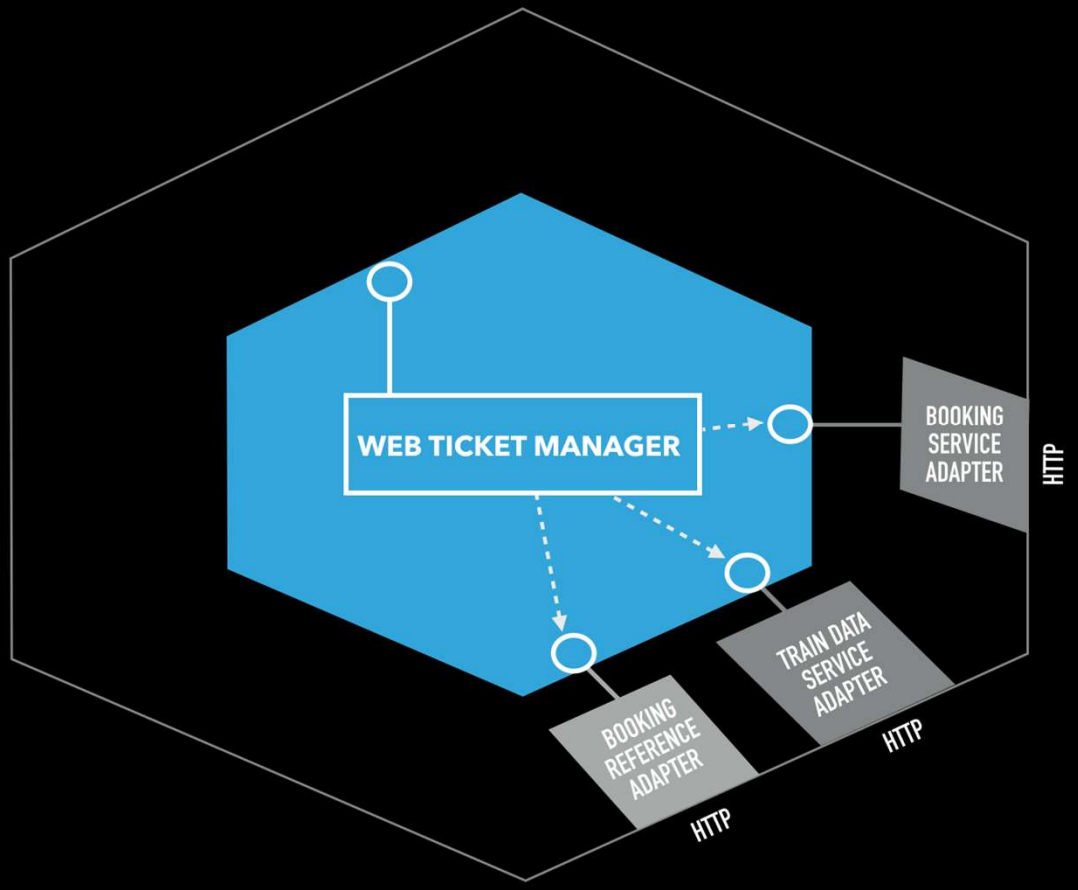
# A 3 STEPS INITIALIZATION

1. INSTANTIATE THE "I NEED TO GO OUT" ADAPTERS

EXPLORE DDD CONFERENCE

# A 3 STEPS INITIALIZATION

## 2. INSTANTIATE THE HEXAGON



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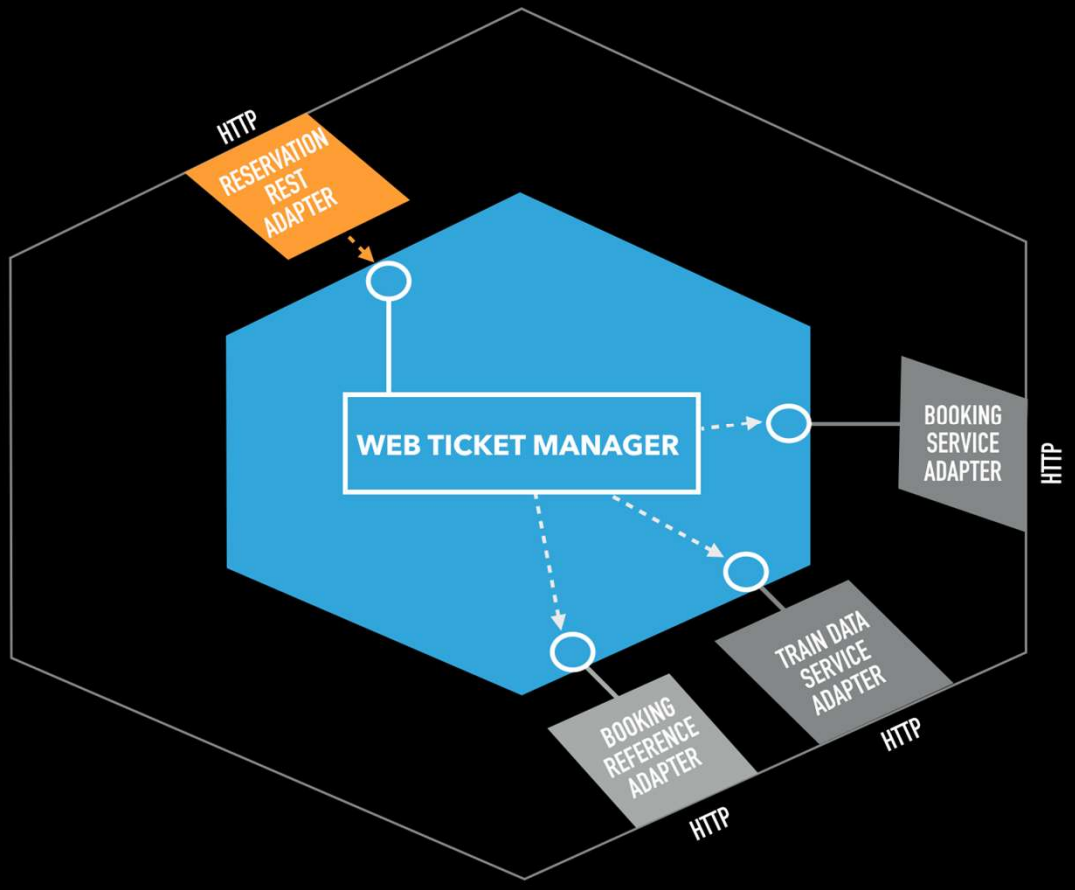
# A 3 STEPS INITIALIZATION

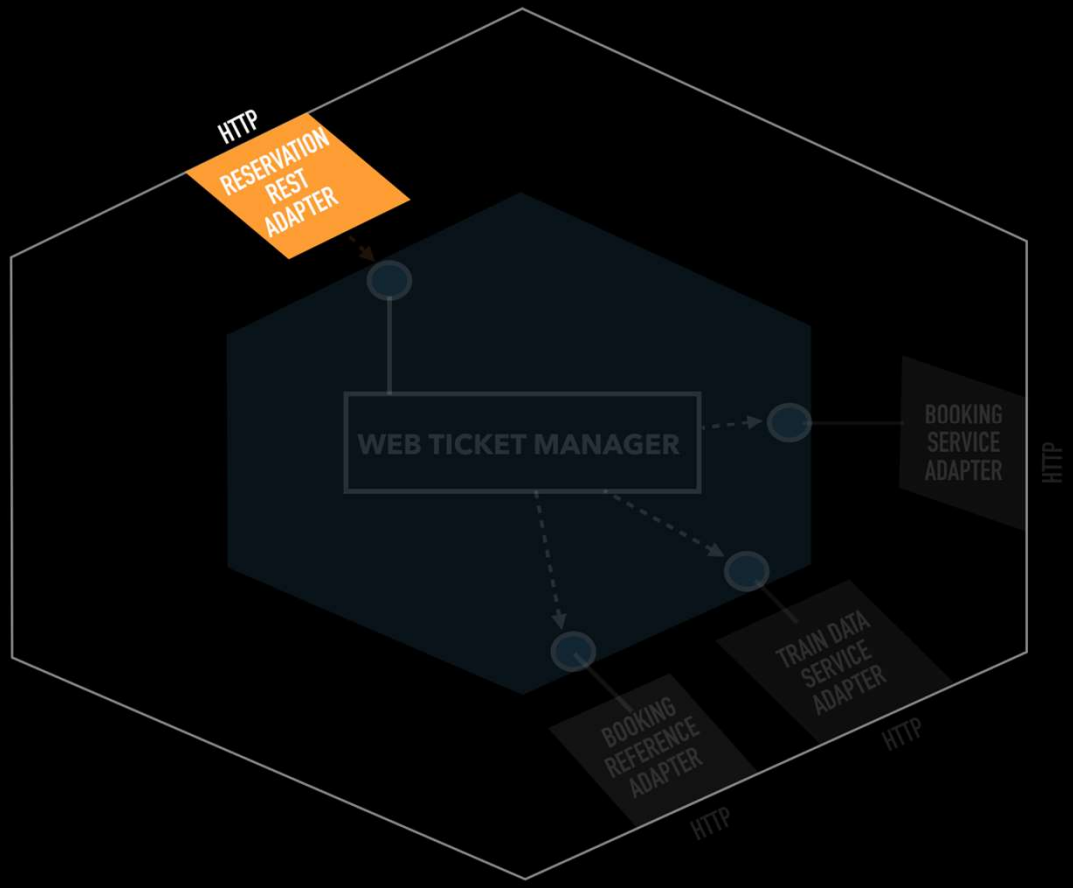
## 3. INSTANTIATE THE "I NEED TO ENTER" ADAPTERS



EXPLORE DDD CONFERENCE

# A 3 STEPS INITIALIZATION

ALL YOU KEEP IN "YOUR HAND"



# HEXAGONAL ARCHITECTURE

LET'S DO IT!

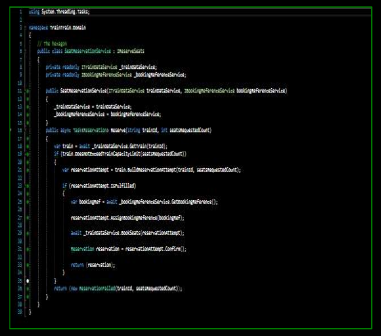
# HEXAGONAL ARCHITECTURE

# WRAP-UP

EXPLORE DDD CONFERENCE

# FROM WEB TICKET MANAGER TO SEAT RESERVATION SERVICE

BEFORE



AFTER

# FROM WEB TICKET MANAGER TO SEAT RESERVATION SERVICE

```
public async Task<Reservation> Reserve(string trainId, int seatsRequestedCount)
{
    Train train = await _trainDataService.GetTrain(trainId);

    if (train.DoesNotExceedTrainCapacityLimit(seatsRequestedCount))
    {
        ReservationAttempt reservationAttempt = train.BuildReservationAttempt(trainId, seatsRequestedCount);

        if (reservationAttempt.IsFulfilled)
        {
            var bookingRef = await _bookingReferenceService.GetBookingReference();

            reservationAttempt.AssignBookingReference(bookingRef);

            await _trainDataService.BookSeats(reservationAttempt);

            Reservation reservation = reservationAttempt.Confirm();

            return reservation;
        }
    }
    return new ReservationFailed(trainId, seatsRequestedCount);
}
```

AFTER

# UBIQUITOUS LANGUAGE IN DA HOUSE

```
public async Task<Reservation> Reserve(string trainId, int seatsRequestedCount)
{
    Train train = await _trainDataService.GetTrain(trainId);

    if (train.DoesNotExceedTrainCapacityLimit(seatsRequestedCount))
    {
        ReservationAttempt reservationAttempt = train.BuildReservationAttempt(trainId, seatsRequestedCount);

        if (reservationAttempt.IsFulfilled)
        {
            var bookingRef = await _bookingReferenceService.GetBookingReference();

            reservationAttempt.AssignBookingReference(bookingRef);

            await _trainDataService.BookSeats(reservationAttempt);

            Reservation reservation = reservationAttempt.Confirm();

            return reservation;
        }
    }
    return new ReservationFailed(trainId, seatsRequestedCount);
}
```

# FINAL WRAP-UP

TALK TO YOUR DOMAIN EXPERTS!

DON'T BE DAUNTED BY LEGACY CODE

APPLY EXTRACT & MOVE TECHNIQUE

MERCI ;-)

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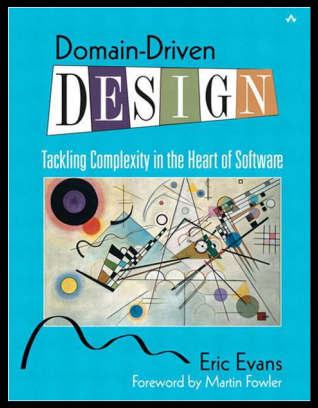
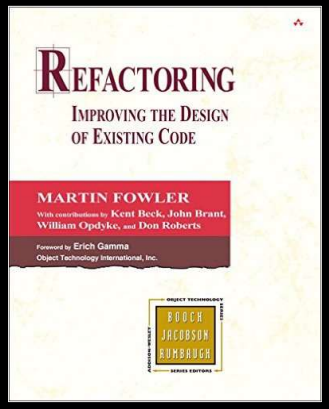
# AND THE WINNERS ARE ...



# QUESTIONS?