EAPLI

Introdução DDD

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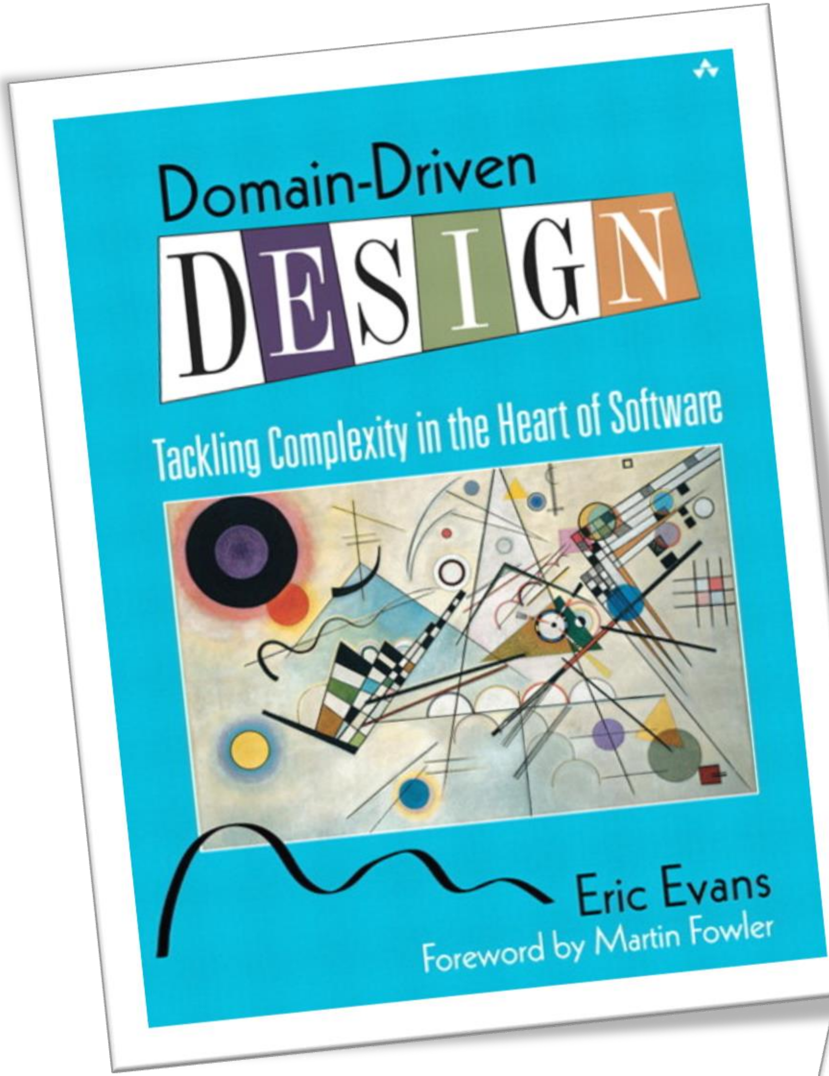
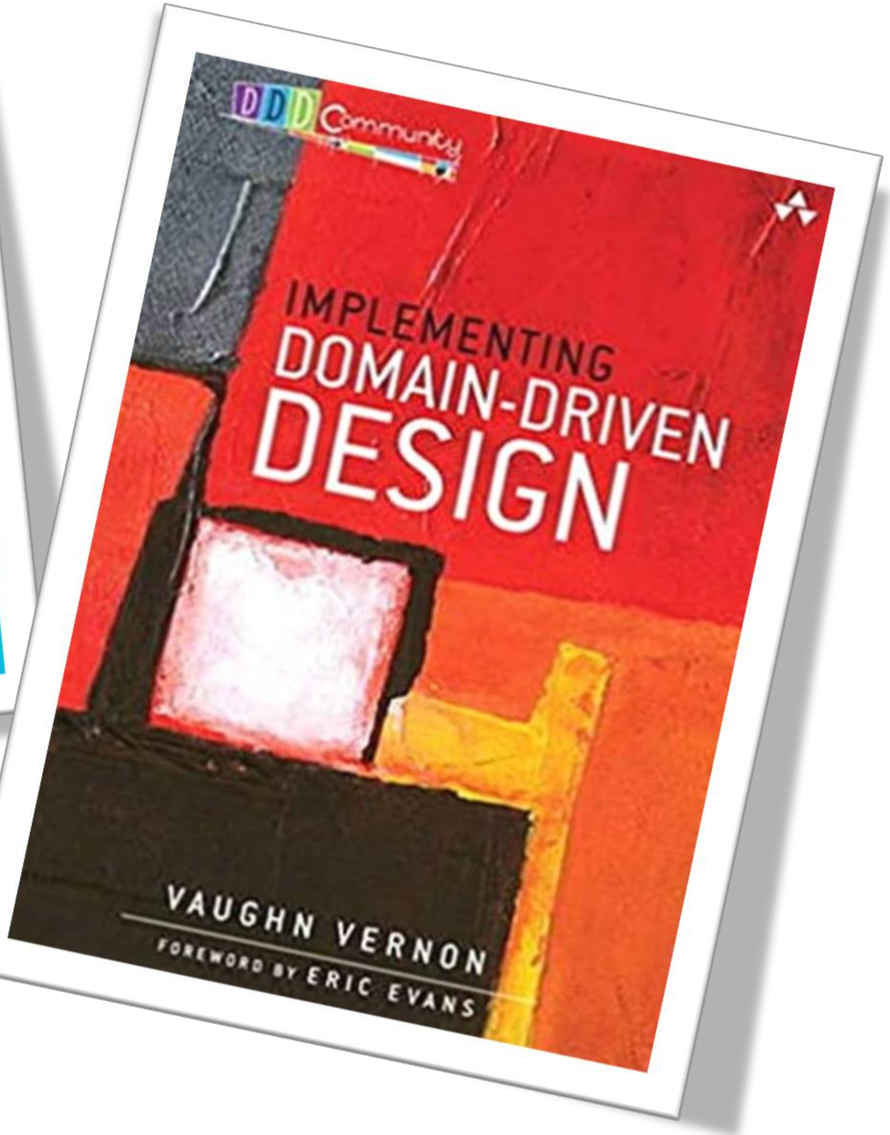

Domain-Driven
DESIGN
Tackling Complexity in the Heart of Software
Eric Evans
Foreword by Martin Fowler


DDD Community
IMPLEMENTING
DOMAIN-DRIVEN
DESIGN
VAUGHN VERNON
FOREWORD BY ERIC EVANS

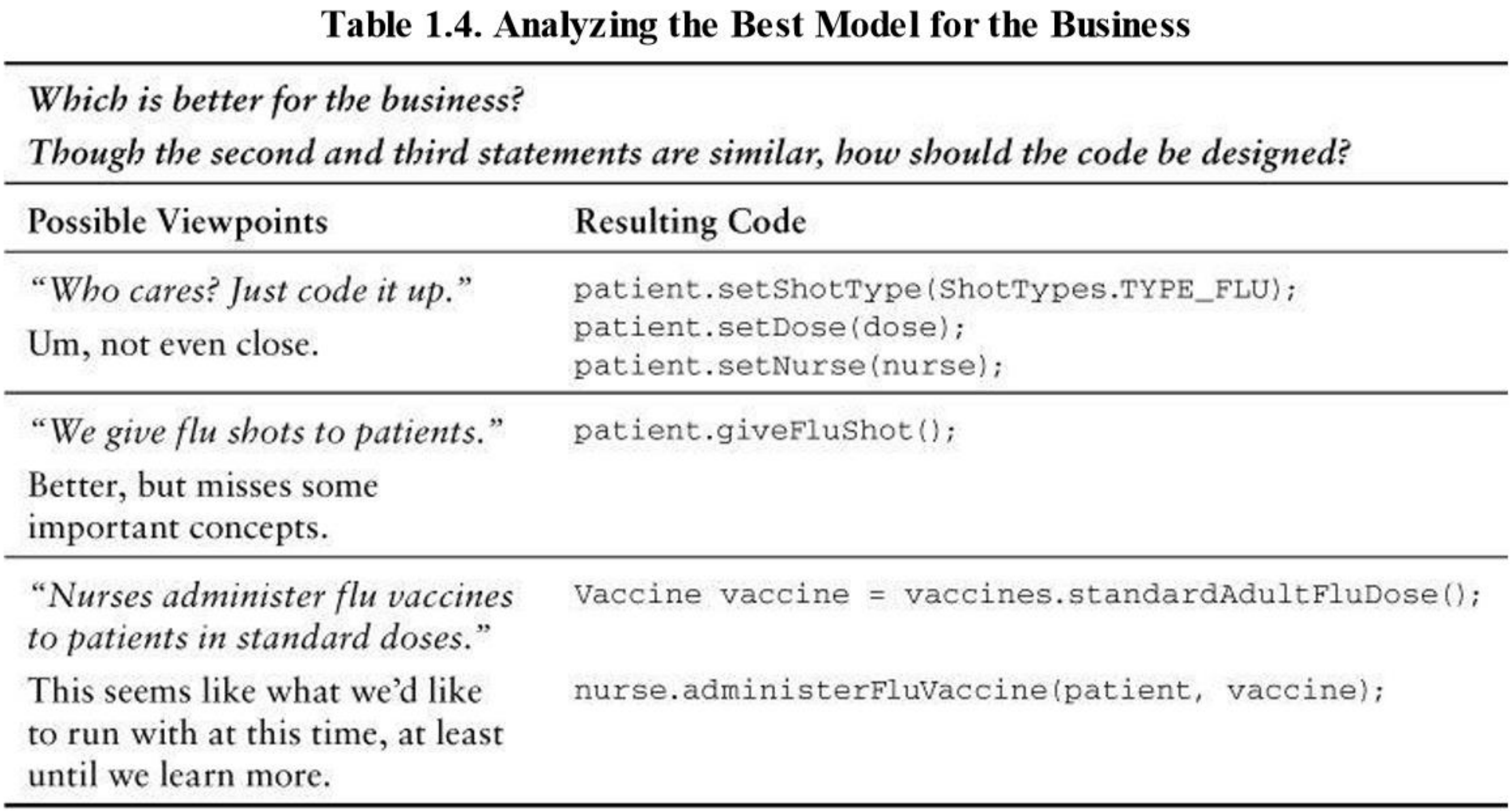


Table 1.4. Analyzing the Best Model for the Business

Which is better for the business?

Though the second and third statements are similar, how should the code be designed?

Possible Viewpoints	Resulting Code

"Who cares? Just code it up."
Um, not even close.
	`patient.setShotType(ShotTypes.TYPE_FLU);`
	`patient.setDose(dose);`
	`patient.setNurse(nurse);`

"We give flu shots to patients." Better, but misses some important concepts.	`patient.giveFluShot();`

"Nurses administer flu vaccines to patients in standard doses."
This seems like what we'd like to run with at this time, at least until we learn more.
	`Vaccine vaccine = vaccines.standardAdultFluDose();`
	`nurse.administerFluVaccine(patient, vaccine);`

Persistence decisions

must not

dictate constrains

on the

domain model

Anemic Domain Model

Procedural thinking where Objects are just Plain data structures devoid of any behaviour, and behaviour is concentrated in "service" and "controller" classes.

Entities

- Objects **with rich behaviour** in the real world which we would like to track its **identity**

- Example:
  - **Student** identified by **Student Number, NIF, email**
  - **Product** identified by Product Reference
  - **Sale** identified by Invoice Number

Entity: example

```
Class Product{
      private ProductID id;
      // other attributes of product,
      //e.g., designation, description, et

      public Product(String sku, Money price) {…}

      public ProductID getProductID() { … }

      private void setProductID(string sku) { … }

      public boolean equals(Object other) {
         if (other==this) return true;
         if (!(other instanceof Product)) return false;
         return this.getProductID().equals(
                    (Product))other.getProductID());
      }
}
```

Always constructed in a valid state

It's ok to return one's identity

No one can change one's identity

Object instances refers to the same real world entity, if they have the same identity

Value objects

DDD

- Problem
  - Some objects matter for the value of its attributes, e.g., Color
  - Serve to describe, quantify or classify na Entity
- Solution
  - Create **immutable** objects which are identified by the equality of its attributes and do not need an identity

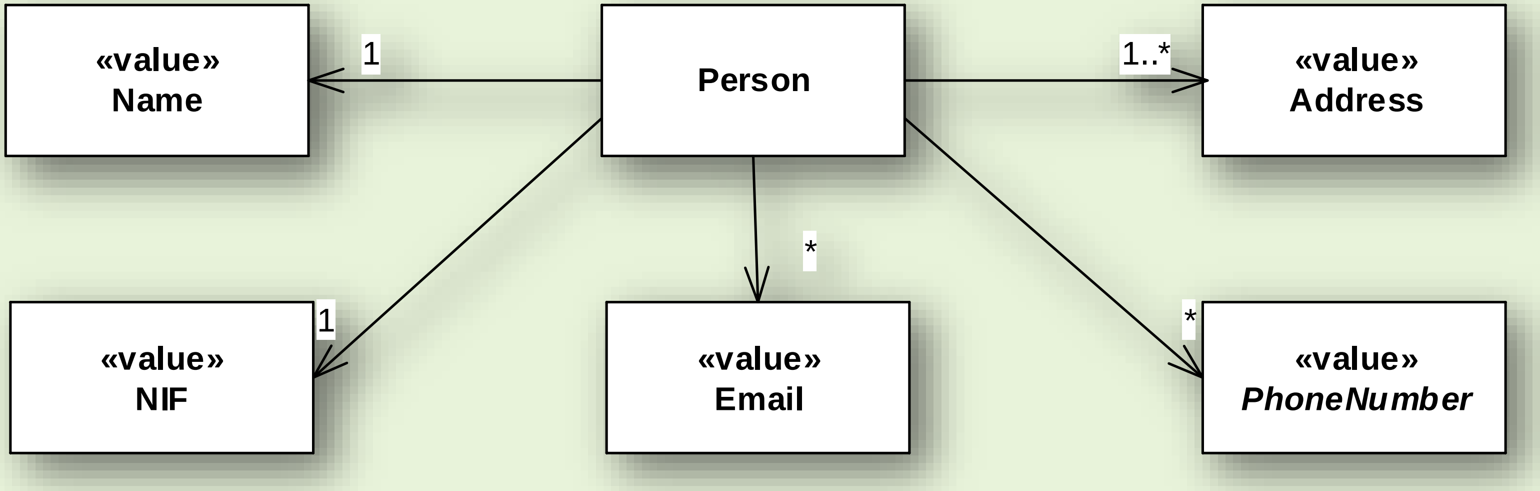
Value object: example

```
class Color {
     private final float red;
     private final float green;
     private final float blue;

     public Color(int r, int g, int b) {…}

     public float redPercentage() {…}
     public float greenPercentage() {…}
     public float bluePercentage() {…}
     public boolean isPrimaryColor() {…}

     // imutable; creates a new object
     public Color combinedWith(Color other) {…}

     // equality by value
     public boolean equals(Object other) {…}
}
```

The Domain, SRP and Value Objects

Primitive types are not the best option to represent domain concepts!

Favour imutability of your objects.



Value Objects are immutable, but they characterize mutable Entities…

```
// two red cars
Color red = new Color(1, 0, 0);
Car c1 = new Car(“AA-10-24”, …, red);
Car c2 = new Car(“AA-10-24”, …, red);

assertEquals(c1.color(), red);
assertEquals(c2.color(), red);

// we cannot change “the color” red, but
// we can change the “color of car” c1
Color blue = new Color(0, 0, 1);
c1.recolor(blue);

assertEquals(c1.color(), blue);
assertEquals(c2.color(), red);
```

Notice the name of the methods. No get/set semantics ☺