Vaccines and Invoicing for the CDC

1

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The Problems with Vaccine Distribution

2

Quantity Control	Manufacturing
Distribution	Invoicing Multiple Players
Accounting for Healthcare Providers	Differences Between Patients

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The Problems with Vaccine Distribution (cont)

3

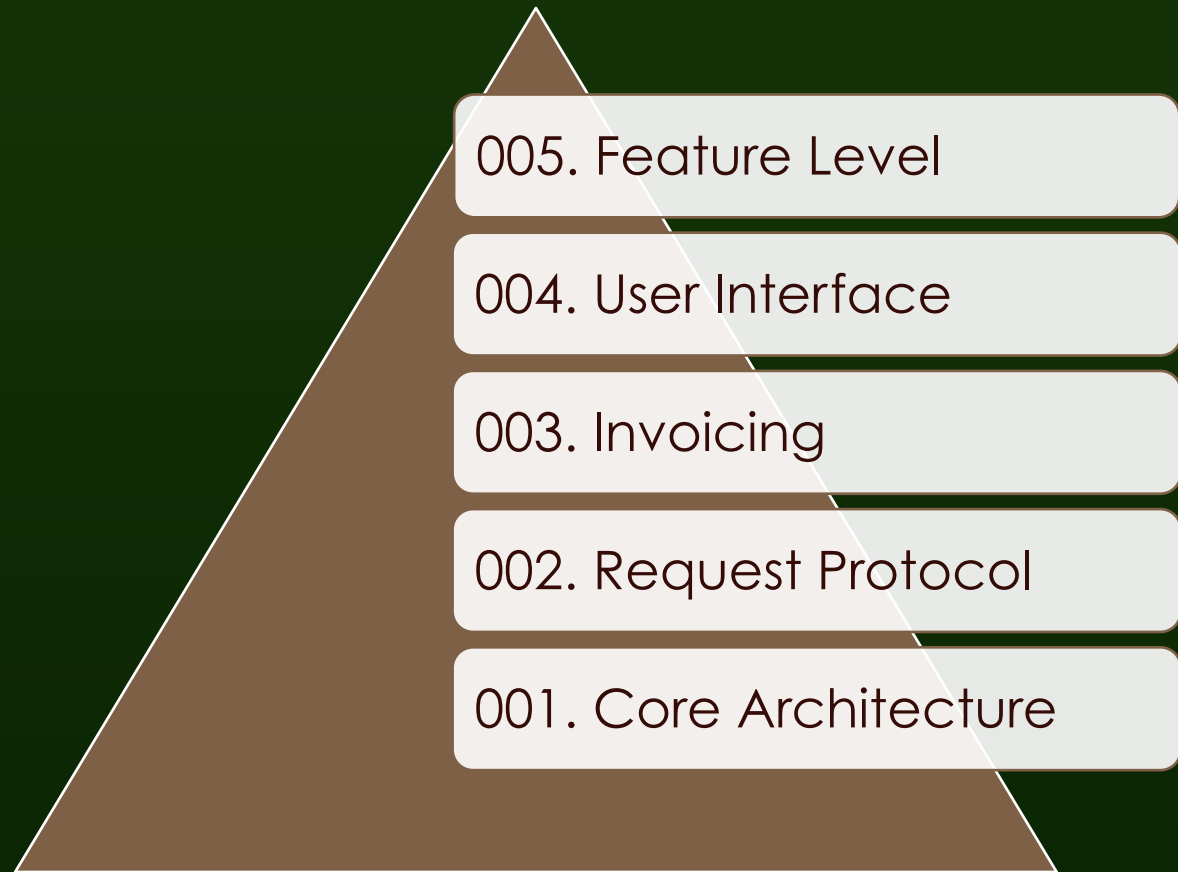- Fulfillment from multiple locations
  - One Order -> Multiple Shipments
- Invoicing Multiple Parties
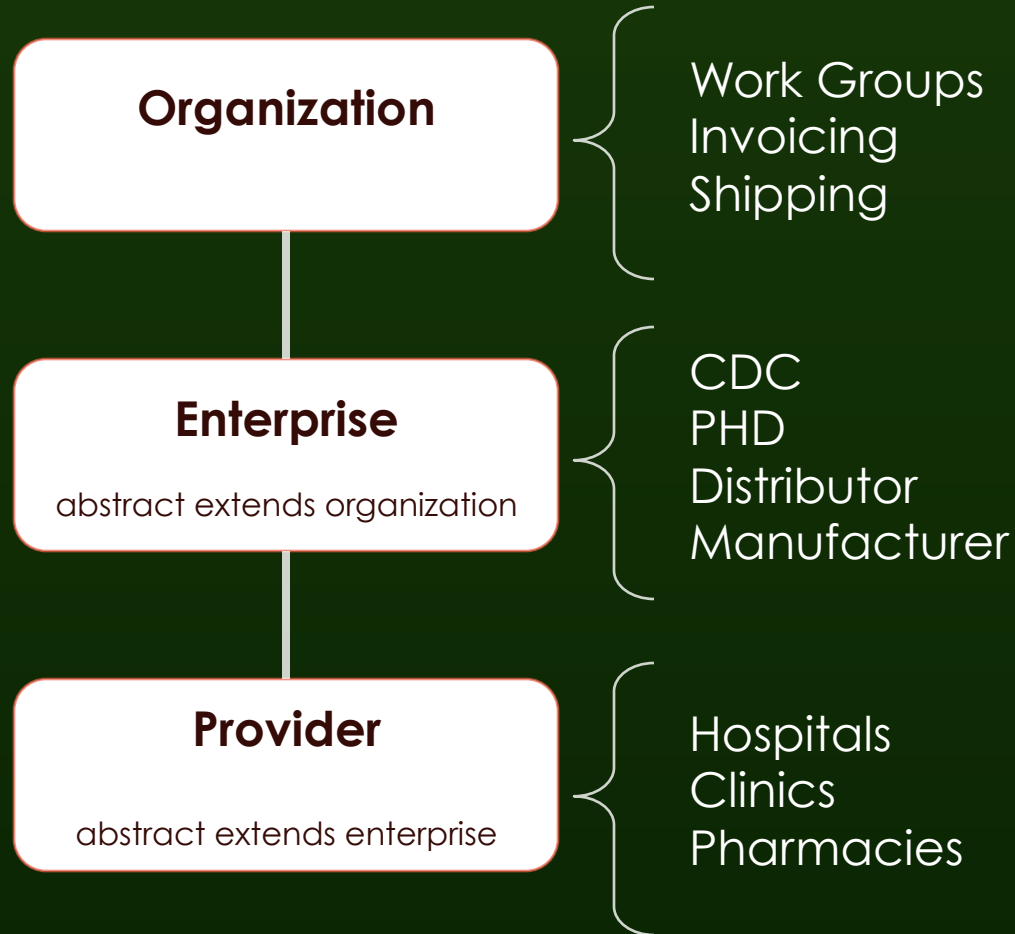 - Many Players
  - Multiple Invoices
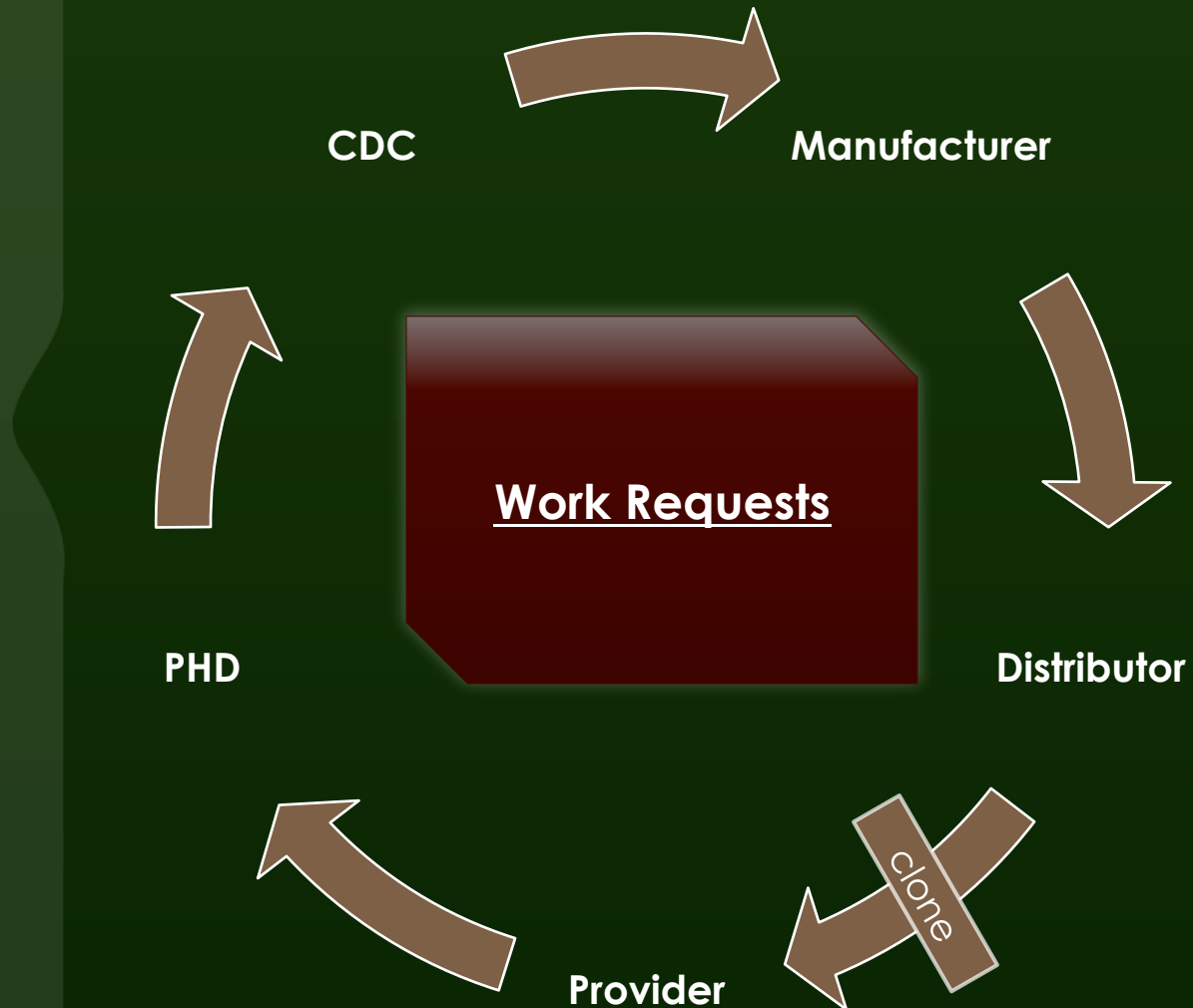- Business Intelligence
  - Statistics
  - Accountability

The Application Stack

005. Feature Level

004. User Interface

003. Invoicing

002. Request Protocol

001. Core Architecture

4

001. Core Architecture:

5

Organization

Work Groups
Invoicing
Shipping

Enterprise

abstract extends organization

CDC
PHD
Distributor
Manufacturer

Provider

abstract extends enterprise

Hospitals
Clinics
Pharmacies

002. Request Protocal:

CDC

Manufacturer

Work Requests

PHD

Distributor

Provider

clone

6

002. Request Protocal: (cont)

7
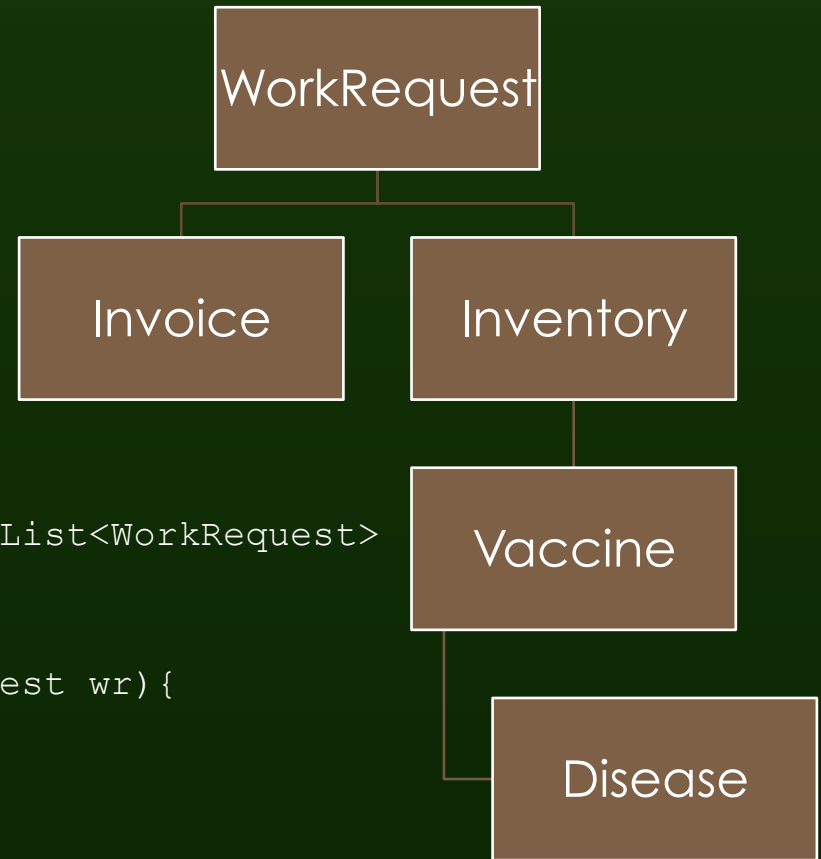
```
public Enterprise(){
workRequestList = new HashMap(Integer, ArrayList<WorkRequest>
}

public WorkRequest cloneWorkRequest(WorkRequest wr){
newWR = new WorkRequest
...
return newWR;
}
```

WorkRequest

Invoice

Inventory

Vaccine

Disease

003. Invoicing

Payable

- Invoiced?

- unpaid -> marked for payment -> paid

Receivable

- Invoiced?

- unpaid -> marked for review -> verified paid

8

passed inside
Work Requests

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003. Invoicing (detail pt 1)

Manufacturer Requests Payment from CDC
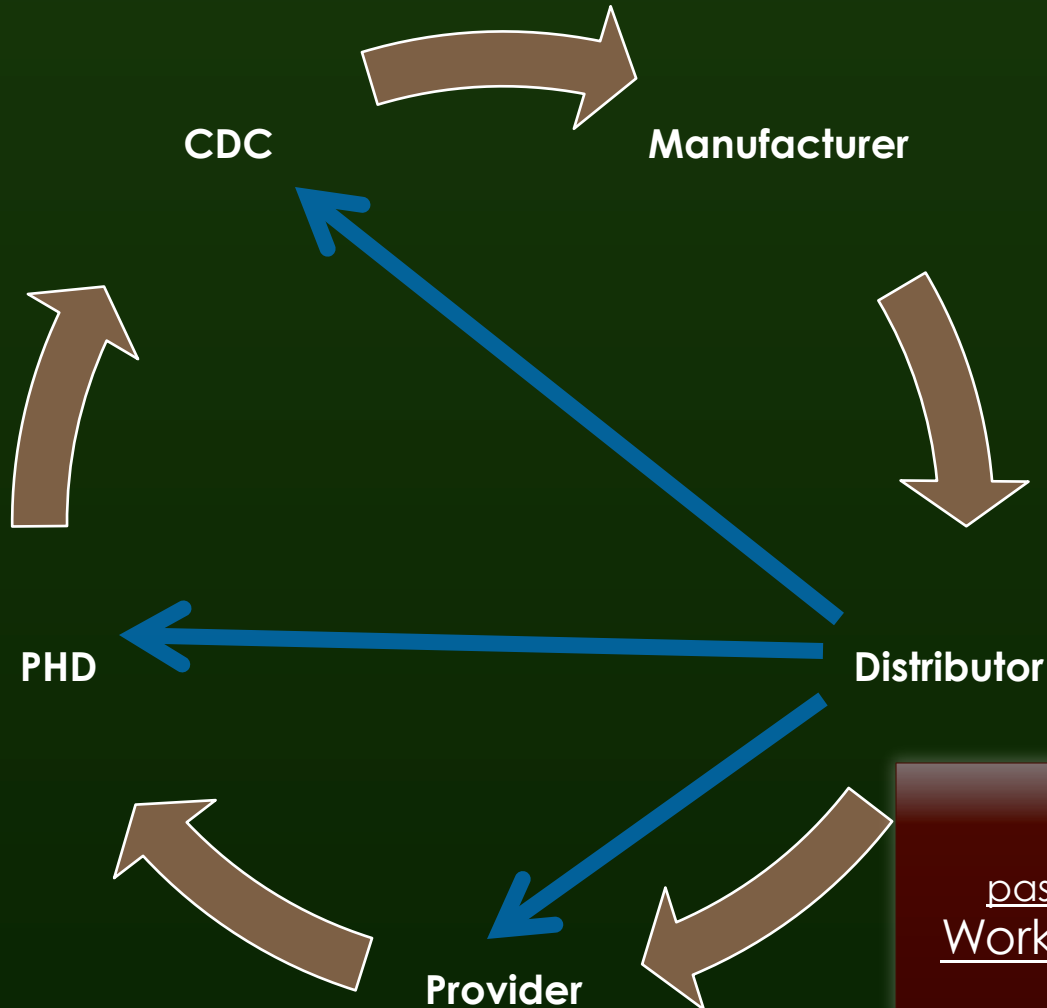
CDC

Manufacturer

Distributor

Provider

PHD

passed inside
Work Requests

003. Invoicing (detail pt 2)

Distributor sends Invoices. Provider Invoices request Payment. CDC gets new acounts receivable

10

CDC

Manufacturer

PHD

Distributor

Provider

passed inside
Work Requests

003. Invoicing (detail pt 2)

CDC

Manufacturer

CDC Receives payment, and pays Manufacturer

PHD

Distributor

Provider
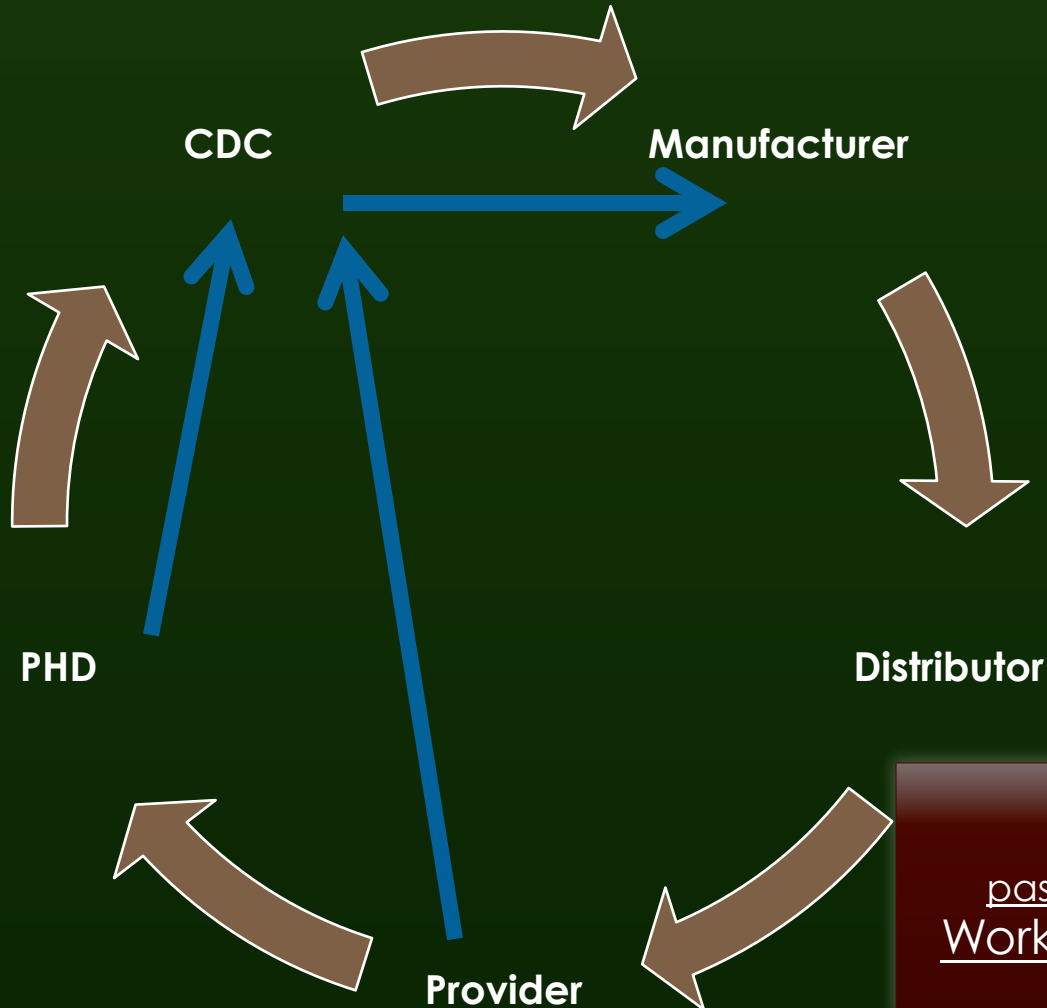
passed inside
Work Requests

004. User Interface

12

UserAccounts
- Roles
- People

Staff
- Organizations
- Enterprises

Work Areas
- WorkRequests
- Filters

005. Feature Level

```
Vaccines     →  Manufactured  →  Shipped
Requested                              ↓
                                       
Used         →  Vaccines in   →  Price Per
                Inventory        Vaccine
                                       ↓
Percentage of →  Expiration   →  Deliquent
Vaccine          Dates           Accounts
Ordered                                ↓

Good  vs. Bad
Customers
```

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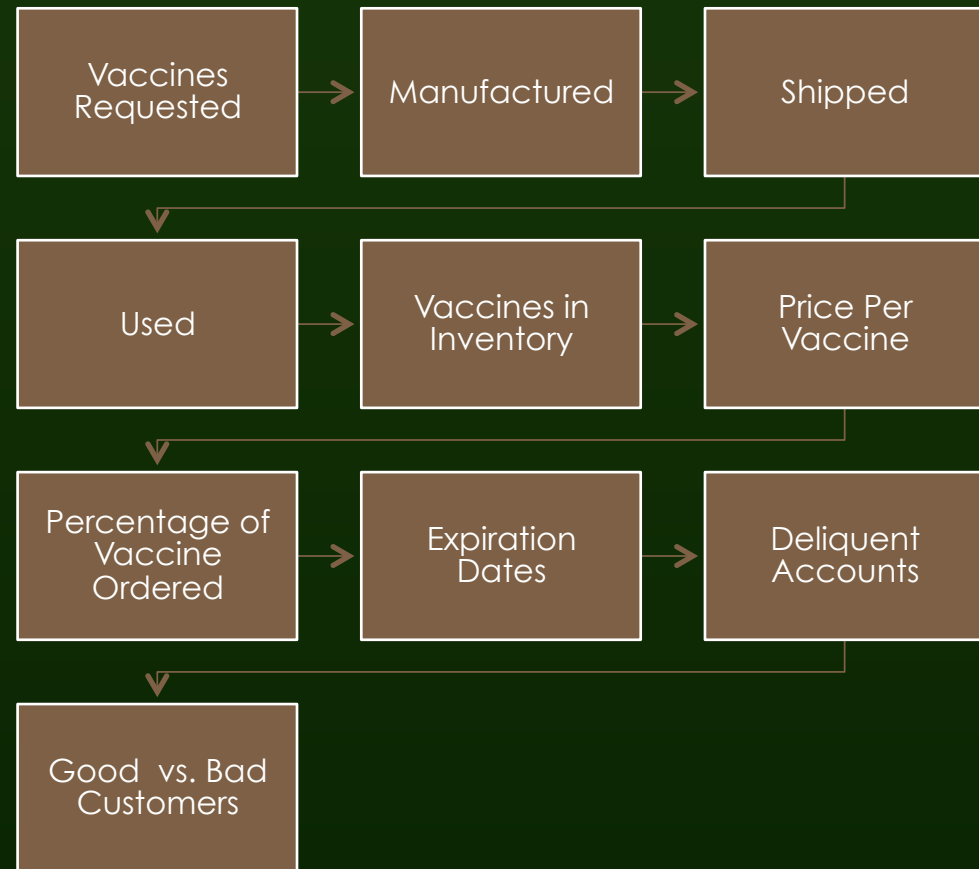
Challenges

- ⌃ Starting with a Good Model

- ⌃ Syntax

  - ❑ HashMaps

  - ❑ Deep Copy

  - ❑ Messy Code

- ⌃ Time Constraints

"I learned so much over the course of this project that by the end of it, I was considering scrapping the whole thing and and rebuilding it from scratch."

15

Thank You

{now, let's see how it works.}

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