CS314 Software Engineering
Domain Models

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Grommet Open Source Project

The most advanced UX framework for enterprise applications. http://grommet.github.io

Branch: master  New pull request

| github | Updated link to CodePen template | 5 months ago |
| tests  | add a size property to Spinning   | 2 hours ago  |
| src    | Added align= to Label.           | 2 hours ago  |
# Grommet Open Source Project

## CMMI for Development Model

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Scrum

https://www.scrum.org/

Representation gap

Problem

Program

Binary
Representation gap reduced

Problem | Domain | Program | Binary

Domain Model

A precise, concise, understandable, and correct model of the real world.
Domain Model construction

- Find the classes
- Prepare a data dictionary
- Find associations
  - Find attributes of objects and links
  - Organize and simplify classes using inheritance
  - Verify that access paths exist for likely queries
  - Iterate and refine the model
  - Reconsider the next level of abstraction
- Group classes into packages

Domain Classes

- Find relevant real-world business objects
  - Start with the nouns in the User Stories
  - Physical entities and concepts
  - Implicit from general or domain knowledge
  - Don’t be too selective, write down anything that comes to mind
- Discard unnecessary business objects
  - Redundant, irrelevant, vague, attributes, operations, roles, implementation, derived
Domain Classes

Bad Classes

- vague
- attribute
- irrelevant
- redundant

Good Classes

- Account
- ATM
- Bank
- Bank Computer
- Cash Card
- Cashier
- Central Computer
- Consortium
- Customer
- Transaction

Software
Banking Network
Cashier
ATM
Consortium
Bank

Bank Computer
Account
Transaction
Cashier Station
Account Data
Transaction Data

Central Computer
Cash Card
User
Cash
Receipt
System

Recordkeeping Provision
Security Provision
Access
Cost
Customer
Domain Data Dictionary

- Prepare a data dictionary
  - a paragraph precisely describing each class
  - include scope, assumptions, restrictions
Domain Associations

- Find the associations between classes
  - Verbs or verb phrases in User Story
  - Structural relationships at the level of the class abstraction
  - Physical location, directed actions, communication, ownership, satisfaction of some condition.

- Discard unnecessary and incorrect associations
  - No class, outside problem domain, implementation, actions, ternary, derived, misnamed

Verb phrases
- Banking network includes cashier stations and ATMs
- Consortium shares ATMs
- Bank provides bank computer
- Bank computer maintains accounts
- Bank computer processes transaction against account
- Bank owns cashier station
- Cashier station communicates with bank computer
- Cashier enters transaction for account
- ATMs communicate with central computer about transaction
- Central computer clears transaction with bank
- ATM accepts cash card
- ATM interacts with user
- ATM dispenses cash
- ATM prints receipts
- System handles concurrent access
- Banks provide software
- Cost apportioned to banks

Implicit verb phrases
- Consortium consists of banks
- Bank holds account
- Consortium owns central computer
- System provides recordkeeping
- System provides security
- Customers have cash cards

Knowledge of problem domain
- Cash card accesses accounts
- Bank employs cashiers
Domain Associations

Domain Model for Domain Models
Sprint Planning

- Preparation
  - Sprint Goal
  - Definition of Done
  - Refine backlog

- Meeting
  - Select prioritized items
  - Plan Sprint
    - Refine/split stories
    - Add/estimate tasks

https://www.scrum.org/
TripCO Sprint 1 Goal

- Provide an itinerary and map for a trip to a given set of locations in Colorado.
TripCO Sprint 1 Definition of Done

- All acceptance criteria in User Stories met
- All artifacts in master on GitHub
- All issues labelled (Stories, Tasks, Defect, ...) and closed
- All changes associated with an issue.

TripCO Sprint 1 Grading

- Correctness
  - All acceptance criteria met.
  - XML and SVG output.
- Process
  - All artifacts in master on GitHub, no changes to master
  - Issues (Stories / Tasks / Defect / ...)
  - Continuous, small, incremental changes (no big bangs)
- Teamwork
  - Everyone contributes equally
Product Backlog

- Select prioritized items