ComS 362 Spring 2018 Mid-Term Prep Vocabulary/Concept List

Basic Design Principles

- Information Hiding
- Separation of Concerns
- Abstraction

Code Smells (See The Chapter in Fowler's Patterns book)

- Duplicated Code
- Long Method
- Large Class
- Primitive Obsession
- Inappropriate Intimacy
- Data Class

Paradigm

Design Paradigms

- imperative class
 - o naïve (Primitive obsessed)
 - o procedural design (eg top down successive refinement)
 - o modular design (later structured design techniques)
 - o object-oriented design
- functional class
 - o functional design

UML Diagrams

- Use Case Diagram
- Domain Model Diagram (restricted class diagram)
- Collaboration (old) or Communication (new) diagram
- For each
 - o what is its purpose its reason for existing?
 - o Where does it fit in the analysis process? design process?
 - o How do we use it during analysis and design?

CRC Cards

Refactoring

Encapsulation

▼ Chapter 3. Bad Smells in Code
Duplicated Code
Long Method
Large Class
Long Parameter List
Divergent Change
Shotgun Surgery
Feature Envy
Data Clumps
Primitive Obsession
Switch Statements
Parallel Inheritance Hierarchies
Lazy Class
Speculative Generality
Temporary Field
Message Chains
Middle Man
Inappropriate Intimacy
Alternative Classes with Different Interfaces
Incomplete Library Class
Data Class
Refused Bequest
Comments

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Use Case Related

- Use Case
- Actor
- Stakeholder
- Goal
- Scenario
- Alternate Scenario
- Exceptional Scenario
- Scenario Extension
- Included Scenario or Included Scenario Fragment

Domain Model Related

- Domain Model
- Role
- Class
- Association
- Multiplicity
- Attribute

Requirements

- Functional Requirements
- EARS

Object Oriented Analysis vs Object Oriented Design

GRASP Patterns

- Expert
- Creator
- High Cohesion
- Low Coupling
- Controller

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Complexity

- Complexity and Abstraction
- Detail Complexity
- Accidental Complexity
- Essential Complexity

Related Historically Significant Papers

- Dijkstra "On the Role of Scientific Thought"
- Parnas "On the Criteria to Be Used in Decomposing Systems into Modules"
- Dijkstra "Goto Considered Harmful"
- Beck "CRC Cards"
- Wirfs-Brock Object Design: Roles, Responsibilities and Collaborations (book)