Requirements & Modeling

Administrative stuff

• Warm-up project
  • Due this Thursday
  • Questions?
• Quiz
• Project proposal due next Wednesday
Outline

- OO
- Use case diagram
- Activity diagram
- Class diagram

Use case diagrams

- A diagram includes
  - Actors
  - Use cases
  - System boundary

Use case text

• Use case name
• Use case priority
• Main scenario
  • Steps
• Extensions
  • Steps

Example: facebook-ith forum

• Actors
  • Regular users, admin
• Use cases for regular users
  • Update profile
  • Update status
  • Send messages
  • Upload photos ...
• Use case description
  • Send message
  • Main scenario (step 1, 2, 3, ...)
  • Extension scenario (...)
How to map it to eXtreme Programming?

• A user story usually is one scenario or a few steps (or one step)

Object-Oriented Programming, Classes

• Class
  • Data + Operation

• Encapsulation
• Polymorphism
• Inheritance

• Enhance modularity!
Class diagram

• Describes the types of objects in the system
• Describes the static relationships among them

http://en.wikipedia.org/wiki/Class_diagram

How to decide/design classes?

• Data+operation
• It is not a good “class”, if it has only data but no operation/behavior
Components of class diagrams

- Class name
- Class properties
  - Attributes
  - Associations (navigability arrows)
    visibility name : type [multiplicity] = default {property-string}
- Class operations
  Visibility name (parameter list) : return-type {property-string}
- Generalization
  - Inheritance (subclass, super class, interface, ...)
- Dependency
- Constraints {}

How to turn class diagram to code

- A private attribute \( \rightarrow ?? \)
- A * attribute/association \( \rightarrow ?? \)
- Class declaration
  - Some attributes may not map to fields
Example (Send-Message)

Summary

- **Use-case diagram**
- Activity diagram
- Class diagram
Example 1: facebook-ish forum

• What are the use cases?
• What are the steps and scenarios of “send message”
• What is the activity diagram for that?
• What is the class diagram for that?
• What is the sequence diagram?