

Use Cases

Object-Oriented Analysis and Design
CSCI 6448 - Fall 1998
Kenneth M. Anderson

Lecture Overview

- Use Cases
 - Use Case description, Actors, Scenarios
 - UML notation
- Examples
- Class Participation
 - Break up into project teams
 - Generate Use Cases
 - Instructor and TA will circulate among groups

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Use Cases

- “Typical interaction between a user and a software system” -- UML Distilled
- Capture requirements
- Group logically-related features
- Achieve user goals
- Flexible granularity
- Can be reused and extended

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Simple Examples

- From UML Distilled
 - “make text bold”
 - “create an index”
- From Chimera
 - “make a link active”
 - “add anchor to active link”
 - “traverse anchor”

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Types of Use Cases

- **User Goals**
 - A high level description of a user’s purpose in interacting with the system
 - “Maintain consistent formatting”
- **System Interactions**
 - An external function of the system for some class of user
 - “Create Style, Edit Style, Apply Style, etc.”



Relationship to Objectory

- **At the beginning of Elaboration**
 - Identify User Goals
 - Perhaps come up with multiple techniques for meeting that goal
- **Towards the end of Elaboration**
 - Identify System Interactions that fulfill User Goals
 - Build Construction Plan with respect to these



Users and Roles (Actors)

- **Before use cases can be generated**
 - Users must be identified
 - Within a system, each user may be able to play more than one role (known as Actor)
- **An Actor can perform many use cases**
- **A use case may require many actors**
- **Actors may be external systems**



Alternative Perspectives on the Use of External Systems

- 1 Show all external systems
 - 2 Show only interactions initiated by external systems
 - 3 Show only the dependencies of external systems
 - 4 Do not show any external system!
- **UML Distilled favors number three**



How to Develop Use Cases

- For each user goal or actor
 - identify interactions (talk with user)
- For each system interaction
 - Name it
 - Write a short textual description
 - No more than 2-3 paragraphs
- User goals are described in a similar fashion

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Example Use Case Descriptions

- Establish Relationships
 - The system will allow the unrestricted creation of relationships between elements of the information managed by the system's clients.
- Create Links
 - The system will provide the ability to create new links. These links may be named and may have distinct types.

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Scenario

- A scenario refers to one path through a use case
 - Using a vending machine
 - 1st scenario: exact change
 - 2nd scenario: insufficient funds
 - 3rd scenario: change required
 - 4th scenario: item gets stuck!

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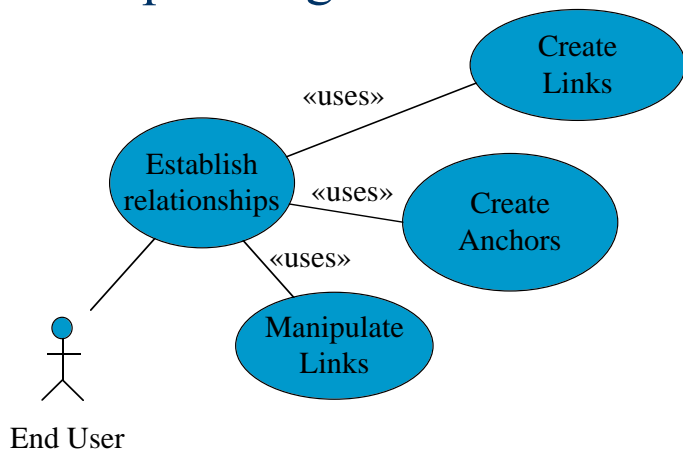


Use Case Diagrams

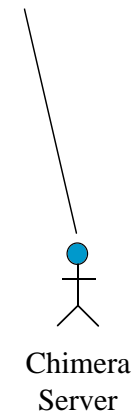
- UML Notation for graphically expressing the relationships between actors and use cases
- Actors represented as stick people
- The symbol for use cases are ovals
- Lines express relationships
 - Two qualifiers: «extends» and «uses»

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Example Diagram

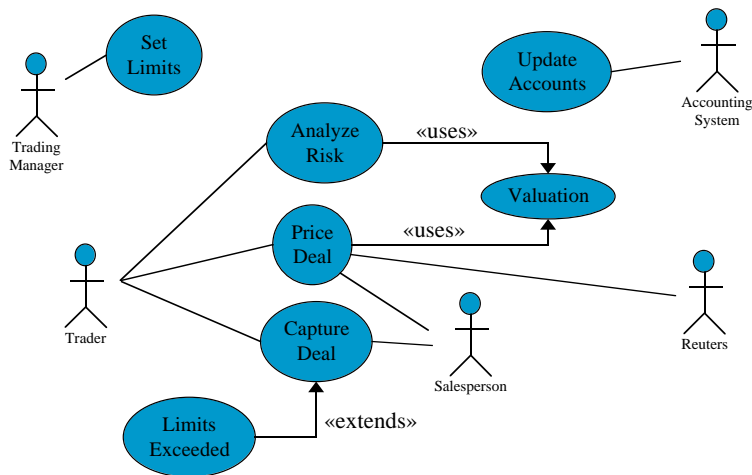


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(Perspective One)
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From UML Distilled (extended)



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Class Participation

- Break up into your project teams
- Identify Users and User Goals
- Identify Actors
- Identify System Interactions
 - Document use cases
 - Construct diagrams
- Not necessarily in this order, iterate!

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