

Requirements Analysis

Overview

- Unified Modeling Language (UML)
- UML Use case diagram
- Case study: The ATM system

Unified Modeling Language (UML)

- Definition
 - A **visual** language for specifying, constructing, and documenting the artifacts of systems
 - Standard **diagramming notation** for drawing pictures related to software
 - Includes 13 types of diagrams

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Two Categories of UML Diagrams

- Structural UML diagrams
 - Class diagram
 - Object diagram
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- Dynamic UML diagrams
 - Use case diagram
 - Sequence diagram
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We will discuss

- Use case diagram (Requirement)
- Class diagram (Requirement & Design)
- Sequence diagram (Requirement & Design)
- Package diagram (Design)

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Use case diagram

- Definition
 - A representation of interactions between actors and the system
- It shows relationship between actors, use cases, and the system
 - the scope of the system
 - the external actors
 - how actors use the system
- It is secondary to text documentation

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Legends



Actor: an entity that interacts with the system.

<<actor>>

Actor: a computer system that interacts with the system under discussion



Use case: usage of a system



Association: relation between an actor and a use case

<<Include>>



Includes dependency: a base use case includes a sub use case as component

<<Extend>>

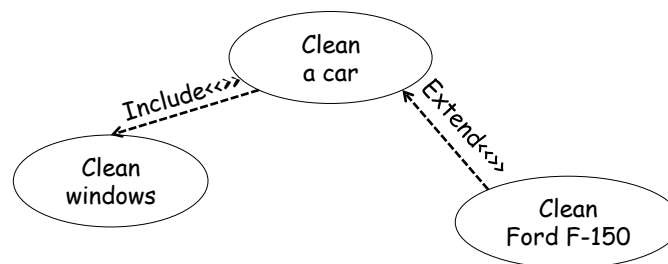


Extends dependency: a use case extends the behavior of a base use case.

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What are the relations?



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Case study: POS system

- With a POS system,
 - a cashier can perform the following tasks (with help of the manager if necessary):
 - Process sale
 - Handle return
 - Register product specification
 - For each activity, the system may first authenticate the cashier or manager
- The POS system interfaces to third-party tax calculator and inventory control

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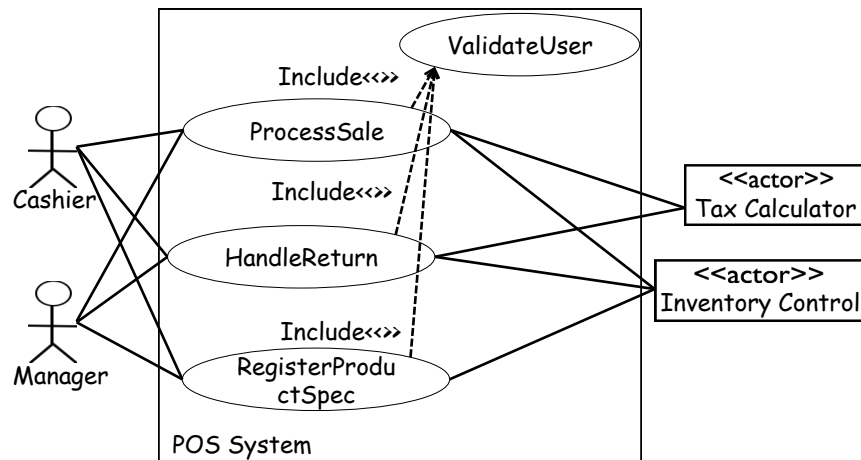
Use Case Diagram

- What are the actors?
- What are the use cases?
- What is the relationship between use cases?

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Use Case Diagram



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Case study: ATM system

- With an ATM, a customer can perform the following activities:
 - check balance
 - transfer
 - withdraw cash
- For each activity, the system will first authenticate the customer
- Some fee may apply for withdrawing or transferring

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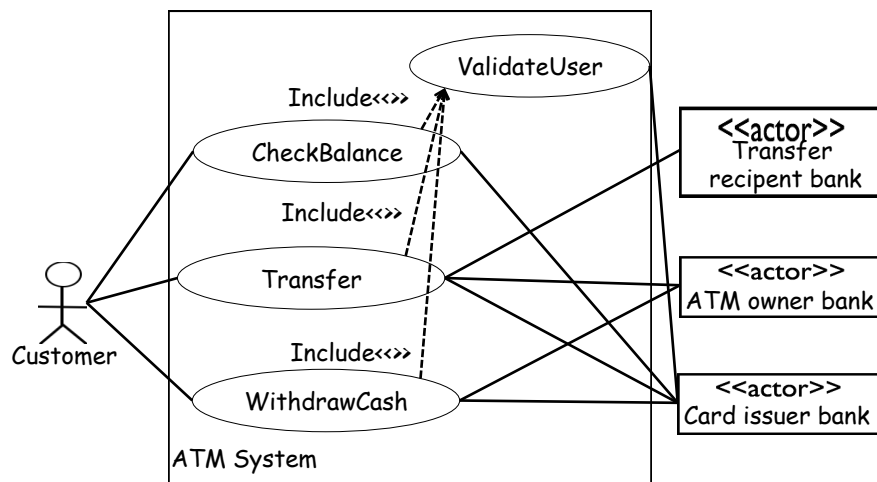
Use Case diagram

- What are the actors?
- What are the use cases?
- What is the relationship between use cases?

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Use Case diagram



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Initial Project Presentation

Date: 09/28/2015

Content

- What are the functional requirements to include?
- What are the nonfunctional requirements?
- What are the biggest challenges?
 - Domain knowledge, new features
- Plan to solve the challenges?