

## Requirements Use case Tool

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# Introduction

- System requirements are the foundation upon which an entire system is built.
- Traditional vehicle for capturing and communicating requirements is the Software Requirements Specification (SRS).
- Use cases provide a more user-centered approach for specifying requirements.

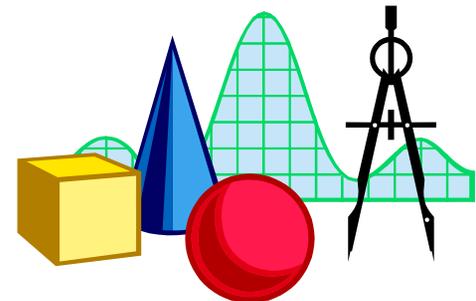
# Unified Modeling Language

- The Unified Modeling Language (UML) is the industry-standard language for specifying, visualizing, constructing, and documenting the artifacts of complex software systems.
- The UML:
  - Is a *language*.
  - Applies to *modeling* and systems.
  - Is based on the object-oriented paradigm.



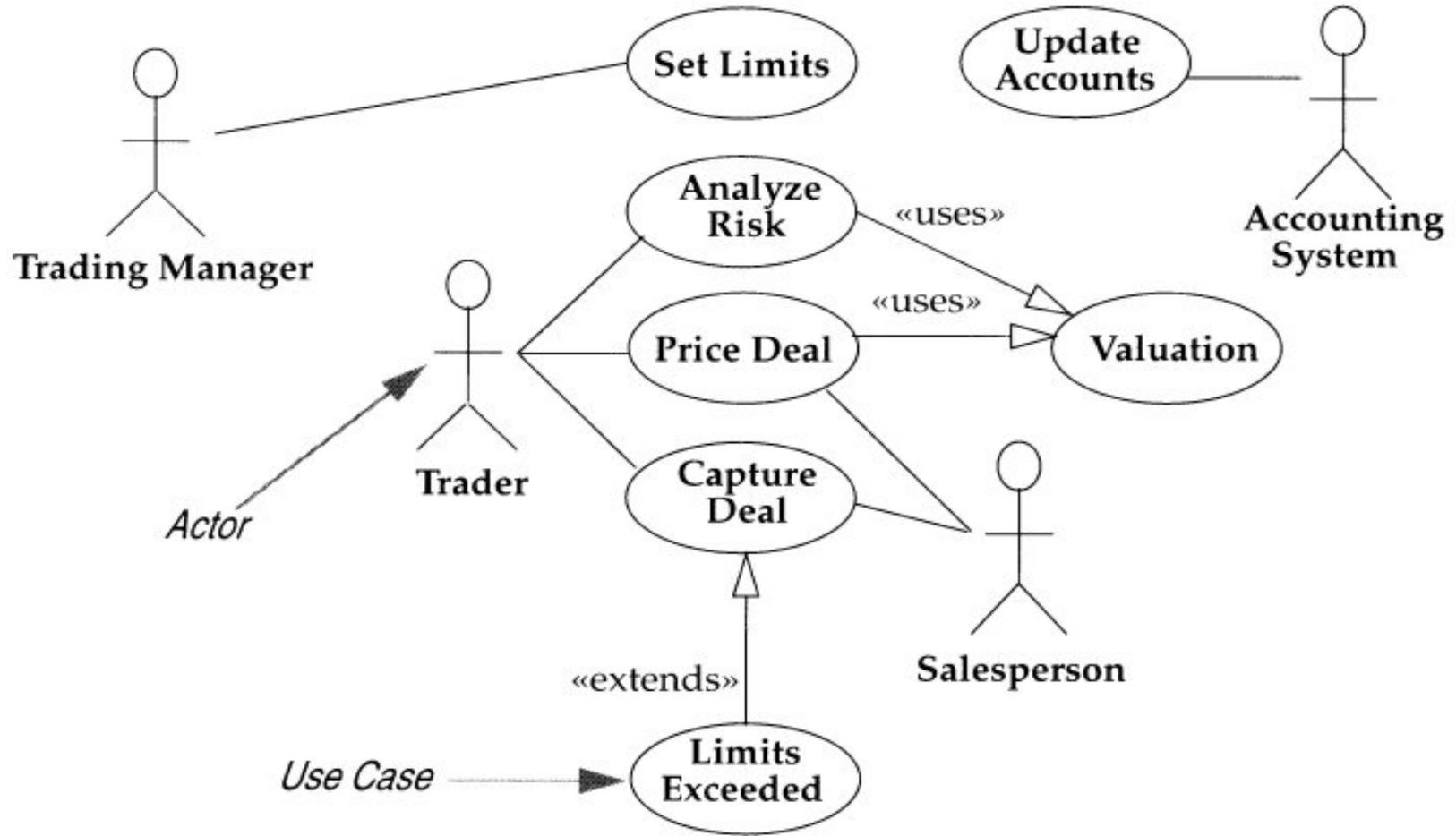
# Use Case Model

- Use cases were designed to capture, via a combination of **structured text** and **graphics**, the functional requirements of a system.
- Use cases are usually described in a textual document that accompanies a use case diagram. The combination of these use case diagrams and their supporting documentation is known as a *use case model*.



- Use case models:
  - Illustrate a system's intended functions (use cases), its surroundings (actors), and the relationships between them (use case diagrams).
  - Are used to COMMUNICATE.
  - Provide a vehicle used by customers and developers to discuss the system's functionality.

# UML Use Case Diagram



Fowler, M., & Scott, K., UML Distilled: Applying the Standard Object Modeling Language, Addison-Wesley, 1997.

# Research Problem

- Research has been conducted on writing effective software requirements in a natural language and has resulted in the development of a tool for evaluating them.
- Use cases provide a more methodological basis for specifying and managing understandable, buildable, and verifiable functional requirements, but there is no clear evaluation technique for requirements written as use cases.

- Identify the attributes of a quality use case.
- Develop software tool for analyzing use cases based on these characteristics.



# Quality Use Cases

- Use cases are written as natural language text descriptions expressed informally. The descriptions express *what* happens from the user's point of view. The details of *how* the system works internally are irrelevant to a use case.
- It is preferable to have actions numbered and starting on new lines. This keeps the narrative clear, improves traceability from requirements to design or test, and allows specific line references needed in the Extensions section.

# Validating Use Cases

- Is the use case complete?
- Is the actor's goal going to be met?
- Are there any changes that would simplify the process depicted in the use case?
- Are there any additional goals that are not addressed?
- Are there any additional actors that are not represented?

# Tool Features

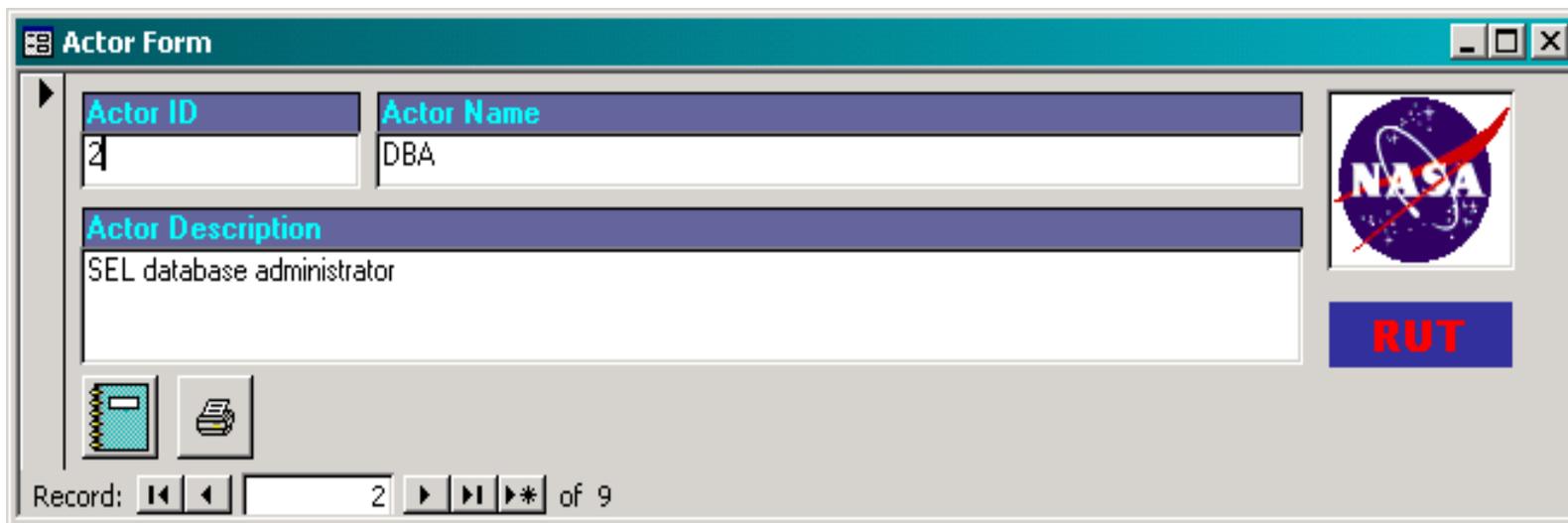
- Use case repository.
- Standard use case template.
- Integration with Rational Rose.
- Mapping and numbering consistency.
- Pop-up validation questions.

# RUT Screen Shot

Use Case Form \_ □ ×

<b>Use Case ID</b>	<b>Use Case Name</b>	 <b>RUT</b> Requirements Use case Tool	
Sub Use Case 1	Create a User Account		
<b>Goal in Context (Overview)</b>			
The DBA chooses an ID and password for the user (Team Lead or team member), enters the ID, password and user's name into the DC&RS, and provides the ID and password to the user.			
<b>Scope and Level</b>			
<b>Preconditions</b>			
The user does not yet have an ID and password for the DC&RS but the user needs one.			
<b>Success End Condition (post conditions)</b>	<b>Failed End Condition</b>		
The user has a valid ID and password for logging into the DC&RS.			
<b>Trigger (the action that starts the use case)</b>	<b>Notes</b>		
When the DBA is told that the user (Team Lead or team member) needs to enter data into or generate reports from the DC&RS but does not yet have an ID or password.			
<b>Primary Actor</b>	<input type="checkbox"/> All records <input type="checkbox"/> Current record		
DBA	<input checked="" type="checkbox"/> 		
<b>DESCRIPTION</b>			
Step	Action		
▶ 1	The DBA is told that the user (Team Lead or team member) requires a personal ID and password to the DC&RS.		
2	The DBA chooses an ID and password for the user, enters them into the DC&RS, along with the users name, and pro		
* 0			
<b>EXTENSIONS</b>		<b>SUB-VARIATIONS</b>	
Step	Branching Action	Step	Branching Action

# RUT Screen Shot



**Actor Form**

<b>Actor ID</b>	<b>Actor Name</b>
2	DBA
<b>Actor Description</b>	
SEL database administrator	

  
**RUT**

Record:  2 of 9