Use Case Model

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Unified Modeling Language - UML

- A specification language for object modeling
  - Industry-standard

- Simplifies the complex process of design
  - Create a "blueprint" for construction
  - Visualize the system model with a standardized graphical notation
  - Document the artifacts of software systems

- UML tools
  - Many products to chose from on the market today
  - Rational® (IBM®), Rhapsody (I-Logix)
Previously on The Lecture

- *Use case* describes what the *system*, as a “black box”, does from an *actor’s* perspective.
- “A use case is a sequence of transactions in a system whose task is to yield a measurable value to an actor.”

[Ivar Jacobson ’95]
Use case levels

1. Business level use-cases
2. System level use-cases
3. Software level use-cases

- Each level may have different actors and use-cases:
  - The actors are entities that are serviced by the business/system/software-system
  - The use-cases are the set of services provided by the business/system/software-system to the actors
Tutorial Outline

- Use case diagram
  - System boundaries
  - Actors and their relationships
  - Use cases and their relationships

- Use case specification (next tutorial)
  - Described textually

- Traceability (next tutorial)
  - Cross-reference between operational requirements and the use cases that cover them
Use Case Diagram

- **System boundary**
  - More than it captures what the system includes it captures what it is not
- **Actor represents a role**
  - Person
  - Hardware
  - Software
- **Use case represents a behavior**
Actors’ Relationships

- An actor may *generalize* another actor.
- The specialized actor inherits the behavior of the general actor and extend it in some way.
Use Cases’ Relationships

- **Generalization**
  - Factors common constraints and assumptions
  - Either X or Y is executed

- **Inclusion**
  - Captures a truly common behavior for multiple use cases
  - X always involves doing Y

- **Extension**
  - Optional behavior that may start during Y
    - E.g spellchecker, rescue
  - X starts at a specified extension point with Y
Use Case Diagram: *BrighTask®* Example

![Use Case Diagram](image-url)