CHAPTER 8
Understanding user requirements

Objectives

- Understand two of the most commonly employed techniques for exploring user requirements: use cases and user stories
- Student could address all the functional requirements of a project by use case diagram and use case specification.

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6. Validating use cases
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8. Use case traps to avoid
9. Benefits of usage-centric requirements

Use cases and user stories

- A use case describes a sequence of interactions between a system and an external actor that results in the actor being able to achieve some outcome of value
- The names of use cases are always written in the form of a verb followed by an object.
- Select strong, descriptive names to make it evident from the name that the use case will deliver something valuable for some user
- Users and actors

The use case approach

- Questions to consider
  - What will the actor use the system for?
  - Will the actor create, store, change, remove, or read data in the system?
  - Will the actor need to inform the system about external events or changes?
  - Will the actor need to be informed about certain occurrences in the system?
- Provide a brief description that elaborates the intent of the use case

Program Vacation Setting

Actor(s): Homeowner/programmer

Description: Homeowner/programmer sets lighting and alarm options for an extended stay away from home

Outline the Use Cases

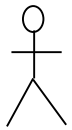
- Outline all the basic flows first
  - Basic flow is the most common path
  - What event starts the use case?
  - How does the use case end?
  - How does the use case repeat some behavior?
- Outline alternate flows
  - Are there optional situations?
  - What odd cases might happen?
  - What variants might happen?
  - What may go wrong?
  - What may not happen?
  - What kind of resources can be blocked?

Use Case Anatomy

- Mandatory elements
  - Name – Unique and descriptive
  - Brief description – Paragraph describing purpose
  - Actors – List all actors that interact with this use case
  - Flow of events – Basic flow and Alternate flows
- Optional elements
  - Pre-conditions – conditions that must be present in order for a use case to start
  - Post-condition – state of the system after a use case has run its course
  - System or subsystem – level of use case. System causes multiple subsystems to interact
  - Other stakeholder – non users
  - Special requirements – performance or throughput

Actors

- An actor is someone or something that interacts with the system
- Users
  - Homeowners are actors on HOLIS system
  - Authors are actors on a word processing system
- Other systems or applications
  - HOLIS Control Switch is an actor on the HOLIS Central Control Unit
- A device
  - Lights
  - Printer



Actor

Use cases and usage scenarios

- Use case labeling convention
- Preconditions and postconditions
- Normal flows, alternative flows, and exceptions
- Dressing the use cases
- Extend and include
- Aligning preconditions and postconditions
- Use cases and business rules

Use cases and usage scenarios

- Exploring use cases
- Validating use cases
- Use cases and functional requirements
  - Use cases only
  - Use cases and functional requirements
- Functional requirements only
- Use cases and tests
- Use case traps to avoid
- Benefits of usage-centric requirements

Use Case Specification Template*

Number	*Unique use case number*	
Name	*Brief noun-verb phrase*	
Summary	*Brief summary of use case major actions*	
Priority	*1-5 (1 = lowest priority, 5 = highest priority)*	
Preconditions	*What needs to be true before use case "executes"*	
Postconditions	*What will be true after the use case successfully "executes"*	
Primary Actor(s)	*Primary actor name(s)*	
Secondary Actor(s)	*Secondary actor name(s)*	
Trigger	*The action that causes this use case to begin*	
Main Scenario	**Step**	**Action**
	Step #	*This is the "main success scenario" or "happy path."*
	…	*Description of steps in successful use case* "execution"
	…	*This should be in a "system-user-system, etc." format.*
Extensions	**Step**	**Branching Action**
	Step #	*Alternative paths that the use case may take*
Open Issues	*Issue #*	*Issues regarding the use case that need resolution*

*Adapted from A. Cockburn, "Basic Use Case Template"

Use Case Specification Template Example

Number	1
Name	Withdraw Money
Summary	User withdraws money from one of his/her accounts
Priority	5
Preconditions	User has logged into ATM
Postconditions	User has withdrawn money and received a receipt
Primary Actor(s)	Bank Customer
Secondary Actor(s)	Customer Accounts Database

Continued …

Trigger	User has chosen to withdraw money	
Main Scenario	**Step**	**Action**
	1	System displays account types
	2	User chooses account type
	3	System asks for amount to withdraw
	4	User enters amount
	5	System debits user's account and dispenses money
	6	User removes money
	7	System prints and dispenses receipt
	8	User removes receipt
	9	System displays closing message and dispenses user's ATM card
	11	User removes card
	10	System displays welcome message
Extensions	**Step**	**Branching Action**
	5a	System notifies user that account funds are insufficient
	5b	System gives current account balance
	5c	System exits option
Open Issues	1	Should the system ask if the user wants to see the balance?