Use Case Narration / Expanded Use case

Topic # 6

Chapter 6 – Craig Larman

Labs

Labs next week

How do we describe use cases?

- Textual or tabular descriptions
- User stories
- Diagram

Example

- A user placing an order with a sales company might follow these steps :
- Browse catalog and select items.
- Call sales representative.
- Supply shipping information.
- Supply payment information.
- Receive conformation number from salesperson.

Alternative Use Case Formats

- Focus on use case analysis with three types of techniques:
- 1. Use case diagram
  - Components: actors, relationships, use case, system boundary
- 2. Textual / Tabular use case
  - Full dressed template
- 3. User stories
- A full-dressed use case is very thorough, detailed, and highly structured.
- The project team may decide that a more casual use case format is acceptable.

Describing a Use Case
How to write use cases

Formats for writing use case

- Use cases can be written in different formats & levels of formality
  - **Brief:** Concise one paragraph summary, usually of the main success scenario.
    - E.g: A customer arrives at the checkout counter with the items to purchase and the cashier records the item. The customer pays the cash and leaves.
  - **Casual:** Informal paragraph format. Multiple paragraphs that cover various scenarios.

    Handle Returns

    Main Success Scenario: A customer arrives at a checkout with items to return. The cashier uses the POS system to record each returned item ...

    Alternate Scenarios:

    If the customer paid by credit, and the reimbursement transaction to their credit account is rejected, inform the customer and pay them with cash.

    If the item identifier is not found in the system, notify the Cashier and suggest manual entry of the identifier code (perhaps it is corrupted).

Formats for writing use case

- Use cases can be written in different formats & levels of formality
  - **Fully dressed:** All steps and variations are written in detail, and there are supporting sections, such as preconditions and success grantees.
- **When these formats are used?**
  - Brief and casual formats are used during early requirement analysis – to get a quick sense of subject and scope. They may take only a few minutes to create.
  - Fully dressed use cases are written after many use cases have been identified and written in brief format. Once the system and its work has been established and clear understanding is done.

User Story

- A user story is an informal, natural language description of one or more features of a software system.
- Often written from end user or user perspective.
- For example, on a job site, two high-level User Stories might be:
  - As a job seeker, I want to search for a job, so I can advance my career.
  - As a recruiter, I want to post a job vacancy, so I can find a new team member.

A Recommended Template

Full Use case Description

Use Case Description		
Use Case name:		
Use Case Description:		
Primary actor:		**Other actors:**
Stakeholders:		
Description:		
Relationships		
▪ **Includes:**		
▪ **Extends:**		
Input:		
Pre-conditions:		
▪		
Flow of Events:		
1. Actor does….		
3.		
4.		
Alternative and exceptional flows:		
4.1 ….		
Post-conditions:		
▪		

How Do You Write a Use Case?

- Use cases contain the following elements:
- **Name** – A clear actor/verb/noun descriptor that communicates the scope of the use case.
- **Brief Description** – A brief paragraph of text describing the scope of the use case.
- **Actors** – A list of the types of users who can engage in the activities described in the use case.
- **Preconditions** – Anything the solution can assume to be true when the use case begins.
- **Basic Flow** – The set of steps the actors take to accomplish the goal of the use case. A clear description of what the system does in response to each user action.
- **Alternate Flows** – Capture the less common user/system interactions, such as being on a new computer and answering a security question.
- **Exception Flows** – The things that can happen that prevent the user from achieving their goal, such as providing an incorrect username and password.
- **Post Conditions** – Anything that must be true when the use case is complete.

Use Case Basics

- A use case has four mandatory elements:
  1. Name:
  2. Brief description:
  3. Actor(s)
  4. Flow of events
- Optional elements in a Use case:
  - Pre-conditions
  - Post-conditions

Brief Description of Use Case

Create new order description

When the customer calls to order, the order clerk and system verify customer information, create a new order, add items to the order, verify payment, create the order transaction, and finalize the order.

Full Use Case Description

Use Case Name:	Create new order
Brief Description:	When customer calls to order, the order clerk and system verify customer information, create a new order, add items to the order, verify payment, create the order transaction, and finalize the order.
Actors:	Telephone sales clerk
Related Use Cases:	Includes: *Check item availability*
Stakeholders:	Sales department: to provide primary definition Shipping department: to verify that information content is adequate for fulfillment Marketing department: to collect customer statistics for studies of buying patterns
Preconditions:	Customer must exist. Catalog, Products, and Inventory items must exist for requested items.
Postconditions:	Order and order line items must be created. Order transaction must be created for the order payment. Inventory items must have the quantity on hand updated. The order must be related (associated) to a customer.

Full Use Case Description

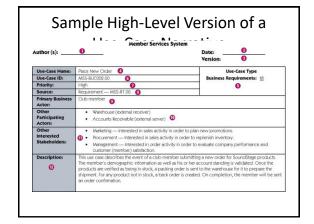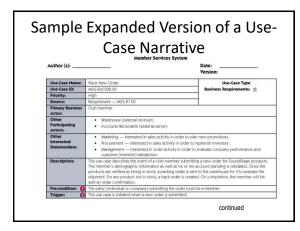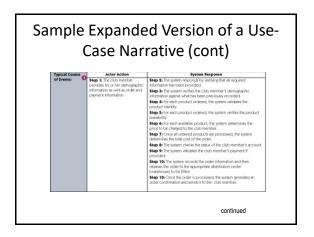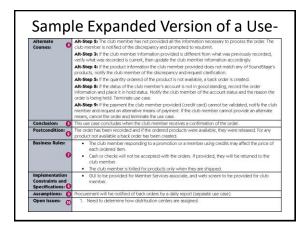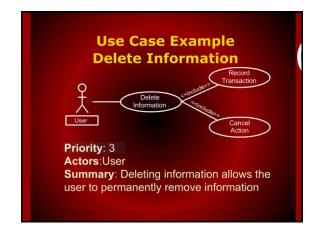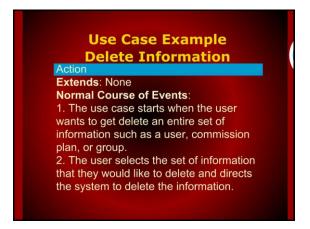| Flow of Events:	1. Sales clerk answers telephone and connects to a customer. 2. Clerk verifies customer information. 3. Clerk initiates the creation of a new order. 4. Customer requests an item to be added to the order. 5. Clerk verifies the item (*Check item availability* use case). 6. Clerk adds item to the order. 7. Repeat steps 4, 5, and 6 until all items are added to the order. 8. Customer indicates end of order; clerk enters end of order. 9. Customer submits payment; clerk enters amount.

Exception Conditions:	2.1 If customer does not exist, then the clerk pauses this use case and invokes *Maintain customer information* use case.
	2.2 If customer has a credit hold, then clerk transfers the customer to a customer service representative.
	4.1 If an item is not in stock, then customer can
	  a. choose not to purchase item, or
	  b. request item be added as a back-ordered item.
	9.1 If customer payment is rejected due to bad-credit verification, then
	  a. order is canceled, or
	  b. order is put on hold until check is received.

Sample High-Level Version of a Use-Case Narrative

Member Services System

Author (s): ❶   Date: ❷   Version: ❸

Use-Case Name:	Place New Order ❹	Use-Case Type
Use-Case ID:	MSS-BUC009.00 ❻	Business Requirements: ☑ ❺
Priority:	High ❼	
Source:	Requirement — MSS-R1.00 ❽	
Primary Business Actor:	Club member ❾	
Other Participating Actors:	• Warehouse (external receiver) • Accounts Receivable (external server) ❿	
Other Interested Stakeholders:	⓫ • Marketing — interested in sales activity in order to plan new promotions. • Procurement — Interested in sales activity in order to replenish inventory. • Management — Interested in order activity in order to evaluate company performance and customer (member) satisfaction.	
Description:	⓬ This use case describes the event of a club member submitting a new order for SoundStage products. The member's demographic information as well as his or her account standing is validated. Once the products are verified as being in stock, a packing order is sent to the warehouse for it to prepare the shipment. For any product not in stock, a back order is created. On completion, the member will be sent an order confirmation.	

Sample Expanded Version of a Use-Case Narrative

Member Services System

Author (s): _____   Date: _____ Version: _____

Use-Case Name:	Place New Order	Use-Case Type
Use-Case ID:	MSS-BUC009.00	Business Requirements: ☑
Priority:	High	
Source:	Requirement — MSS-R1.00	
Primary Business Actor:	Club member	
Other Participating Actors:	• Warehouse (external receiver) • Accounts Receivable (external server)	
Other Interested Stakeholders:	• Marketing — Interested in sales activity in order to plan new promotions. • Procurement — Interested in sales activity in order to replenish inventory. • Management — Interested in order activity in order to evaluate company performance and customer (member) satisfaction.	
Description:	This use case describes the event of a club member submitting a new order for SoundStage products. The member's demographic information as well as his or her account standing is validated. Once the products are verified as being in stock, a packing order is sent to the warehouse for it to prepare the shipment. For any product not in stock, a back order is created. On completion, the member will be sent an order confirmation.	
Precondition: ❶	The party (individual or company) submitting the order must be a member.	
Trigger: ❷	This use case is initiated when a new order is submitted.	

continued

Sample Expanded Version of a Use-Case Narrative (cont)

Typical Course of Events: ❸	Actor Action	System Response
	Step 1: The club member provides his or her demographic information as well as order and payment information.	**Step 2:** The system responds by verifying that all required information has been provided. **Step 3:** The system verifies the club member's demographic information against what has been previously recorded. **Step 4:** For each product ordered, the system validates the product identity. **Step 5:** For each product ordered, the system verifies the product availability. **Step 6:** For each available product, the system determines the price to be charged to the club member. **Step 7:** Once all ordered products are processed, the system determines the total cost of the order. **Step 8:** The system checks the status of the club member's account. **Step 9:** The system validates the club member's payment if provided. **Step 10:** The system records the order information and then releases the order to the appropriate distribution center (warehouse) to be filled. **Step 10:** Once the order is processed, the system generates an order confirmation and sends it to the club member.

continued

Sample Expanded Version of a Use-

| Alternate Courses: | Alt-Step 2: The club member has not provided all the information necessary to process the order. The club member is notified of the discrepancy and prompted to resubmit.
Alt-Step 3: If the club member information provided is different from what was previously recorded, verify what was recorded is current, then update the club member information accordingly.
Alt-Step 4: If the product information the club member provided does not match any of SoundStage's products, notify the club member of the discrepancy and request clarification.
Alt-Step 5: If the quantity ordered of the product is not available, a back order is created.
Alt-Step 8: If the status of the club member's account is not in good standing, record the order information and place it in hold status. Notify the club member of the account status and the reason the order is being held. Terminate use case.
Alt-Step 9: If the payment the club member provided (credit card) cannot be validated, notify the club member and request an alternative means of payment. If the club member cannot provide an alternate means, cancel the order and terminate the use case. |
|---|---|
| Conclusion: | This use case concludes when the club member receives a confirmation of the order. |
| Postcondition: | The order has been recorded and if the ordered products were available, they were released. For any product not available a back order has been created. |
| Business Rules: | • The club member responding to a promotion or a member using credits may affect the price of each ordered item.
• Cash or checks will not be accepted with the orders. If provided, they will be returned to the club member.
• The club member is billed for products only when they are shipped. |
Implementation Constraints and Specifications:	• GUI to be provided for Member Services associate, and web screen to be provided for club member.
Assumptions:	Procurement will be notified of back orders by a daily report (separate use case).
Open Issues:	1. Need to determine how distribution centers are assigned.

Exercise

- "Customer arrives at checkout with items to purchase in cash. Cashier records the items and takes cash payment. On completion, customer leaves with items. "

Another Example of a detailed Use Case

Use Case Example Delete Information

Priority: 3
Actors:User
Summary: Deleting information allows the user to permanently remove information

Use Case Example Delete Information

from the system. Deleting information is only possible when the information has not been used in the system.
Preconditions: Information was previously saved to the system and a user needs to permanently delete the information.
Post-Conditions: The information is no longer available anywhere in the system.
Includes: Record Transactions, Cancel

Use Case Example Delete Information

Action
Extends: None
Normal Course of Events:
1. The use case starts when the user wants to get delete an entire set of information such as a user, commission plan, or group.
2. The user selects the set of information that they would like to delete and directs the system to delete the information.

Use Case Example
Delete Information

Exception 1, 2
3. The system responds by asking the user to confirm deleting the information.
4. The user confirms deletion.
    Alternative Path: Cancel Action
5. A system responds by deleting the information and notifying the user that the information was deleted from the system.
6. This use case ends.
Alternative Path - The user does not

Use Case Example
Delete Information

confirm Deletion
1. If the user does not confirm deletion, the information does not delete.
    Include: Cancel Action
Exceptions:
1. The system will not allow a user to delete information that is being used in the system.
2. The system will not allow a user to delete another user that has subordinates.

Use Case Example
Delete Information

Assumptions:
1. Deleted information is not retained in the system.
2. Deleting information covers a permanent deletion of an entire set of data such as a commission plan, user, group etc. Deleting a portion of an entire set constitutes modifying the set of data.

Limitations of use cases

What Use Cases Include	What Use Cases Do NOT Include
• Who is using the website • What the user want to do • The user's goal • The steps the user takes to accomplish a particular task • How the website should respond to an action	• Implementation-specific language • Details about the user interfaces or screens.

Limitations of use cases

• Use case flows are not well suited to easily capturing non-functional requirements (such as platform, performance, timing, or safety-critical aspects). These are better specified declaratively elsewhere.

• Use cases templates do not automatically ensure clarity. Clarity depends on the skill of the writer(s).

• There is a learning curve involved in interpreting use cases correctly, for both end users and developers. As there are no fully standard definitions of use cases, each group must gradually evolve its own interpretation. Some of the relations, such as extends, are ambiguous in interpretation and can be difficult for stakeholders to understand.

READING

Chapter 6 – Applying UML and Pattern by Craig Larman 3rd Edition

END OF TOPIC 6

-**COMING UP!!!!!!**
-**Domain Models**
-**Class Diagrams**

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