REQUIREMENTS ANALYSIS AND DESIGN (PHÂN TÍCH VÀ THIẾT KẾ YÊU CẦU) 502050

Chapter 4
Discovery Phase I

Outline

- Set Baseline

- Introduction to Discovery Phase

- Behavioral Analysis using use-case description (Ebook 3, pages 171-175)

- Use Case Description Example

- Advanced Use-Case Features

Set Baseline

- Once initiation phase is over…
- Save the state of the analysis (so that we can refer back)
- Phases

We can generalize SDLC into 5 different phases:

1. Initiation
2. **Discovery**
3. Construction
4. Final Verification and Validation
5. Closeout

Introduction to Discovery Phase

- Ready to take project into analysis
- Analyze and document requirements of project
- Can include some testing activities (validate idea)
- Includes Requirements and Testing discipline

Responsibility

- Finding out the detailed requirements from the stakeholders

- Analyze and document these requirements

Steps in Discovery Phase

- 1. Perform Behavioral Analysis
  - Describe the system use case (use-case description)
  - Describe state behavior (state-machine diagram)
- 2. Perform Structural Analysis
  - (class diagram)
- 3. Specify test plan
- 4. Specify implementation plan
- 5. Set baseline for development

Behavioral Analysis using use-case description

- Actors
  - Workers
  - Business Actors
  - Other Systems
  - Role Map
- User Requirements
  - System Use-Case Diagrams
  - System Use-Case Descriptions
- State-Machine Diagrams
- Nonfunctional Requirements
- Business Rules
- State Requirements
  - Testing State
  - Disabled State
- Structural Model

Section for use-case diagrams

Section for use-case descriptions

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Use Case Description

Use Case Name:	Create new order	
Scenario:	Create new telephone order	
Triggering Event:	Customer telephones RMO to purchase items from the catalog.	
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.	

Flow of Events:	Actor	System
	1. Sales clerk answers telephone and connects to a customer.	
	2. Clerk verifies customer information.	
	3. Clerk initiates the creation of a new order.	3.1 Create a new order.
	4. Customer requests an item be added to the order.	
	5. Clerk verifies the item (*Check item availability* use case).	5.1 Display item information.
	6. Clerk adds item to the order.	6.1 Add an order item.
	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.	8.1 Complete order.
		8.2 Compute totals.
	9. Customer submits payment; clerk enters amount.	9.1 Verify payment.
		9.2 Create order transaction.
		9.3 Finalize order.

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.	

Use Case Description Exercise

- Simple Telco Web Portal System (STWPS) is a web portal used by customers to buy mobile phone and manage their accounts.

- The portal provides an online shop for customers to search and shop for mobile phone at the comfort of their home anytime, anywhere (Similar to http://www.singtelshop.com , http://www.m1shop.com.sg/ , http://www.starhub.com/shoponline.html)

- Try visiting any of the above URLs to get a feel of how a user can shop for mobile phones online.
  - Use Case: *Record online mobile phone order*

Advanced Use-Case Features

UNIFIED MODELING LANGUAGE

- UML provides some advanced use-case features
- Increases reusability

Advanced
Use-Case Features

- Add complexity to the diagram
- Remember the business stakeholders might not BComp grad ☺
- Use these advanced features for internal documentation
- Include
- Extend
- Inheritance