## **Use Case Analysis**

## Chapter 4

## **Key Ideas**

- Use cases are a text-based method of describing and documenting complex processes
- Use cases add detail to the requirements outlined in the requirement definition
- Systems analysts work with users to develop use cases

Systems analysts develop process and data models later based on the use cases

#### **Use Cases**

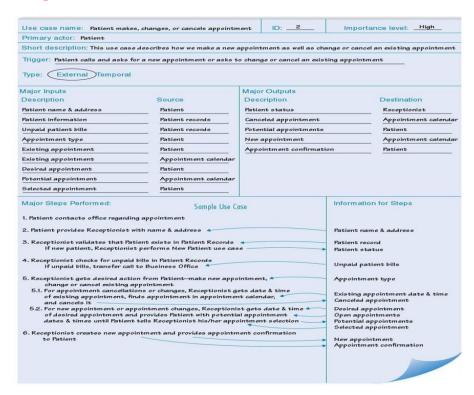
#### **Roles of Use Cases**

- A use case is a set of activities that produce some output result
- Describes how the system reacts to an **event** that **triggers** the system
- Trigger -- event that causes the use case to be executed
- **Event-driven modeling** everything in the system is a response to some triggering event
- All possible responses to the event are documented
- Use cases are helpful when the situation is complicated

#### **Elements of a Use Case**

- Basic information
  - Name, number and brief description
  - Trigger event that causes the use case to being
    - External trigger some from outside the system
    - Temporal triggers time-based occurrences
  - Viewpoint of the use cases should be consistent
- Major inputs and outputs
  - Sources and destinations
  - Goal is to be all inclusive
- Details
  - Steps performed and the data inputs and outputs

## **Sample Use Case**



## **Building Use Cases**

#### **Process of Developing Use Cases**

- Identify the major use cases
- Identify the major steps within each use case
- Identify elements within steps
- Confirm the use case
- Cycle through the above steps iteratively

# Step 1:

## Identify the major use cases

Activities	Typical Questions Asked
Start a use case form for each use case	Ask <i>who</i> , <i>what</i> , and <i>where</i> about the tasks and their inputs and outputs:
If more than nine, group	What are the major tasks performed?
into packages	What triggers this task? What tells you to perform this task?
	What information/forms/reports do you need to perform this task?
	Who gives you these information/forms/reports?
	What information/forms/reports does this produce and where do they go?

# Sample List of Events-Actions Based on Requirements Definition

From Requirements Definition	Event	Action
2. Road De-Icing		
2.1. System produces road de-icing schedule	Highway department requests road delicing schedule	Road de-icing schedule is produced
2.2. System records all roads that have been treated	Truck drivers complete a road treatment and report completion status	Road treatment is recorded
2.3. System receives road condition information from road sensors	Road sensor transmits current road conditions	Sensors' current road conditions are recorded
<ol> <li>System produces updated road de-icing schedule using road treatment and road sensor data</li> </ol>	Need new road de-icing schedule based on current road conditions and road treatments	Updated road deicing schedule is produced
etc.		

# Step 2: Identify the major steps within each use case

Activities	Typical Questions Asked
For each use case, fill	Ask <i>how</i> about each use case:
in the major steps needed to process the inputs and produce the outputs	How do you produce this report?
	How do you change the information on the report?
	How do you process forms?
	What tools do you use to do this step (e.g., on paper, by email, by phone)?

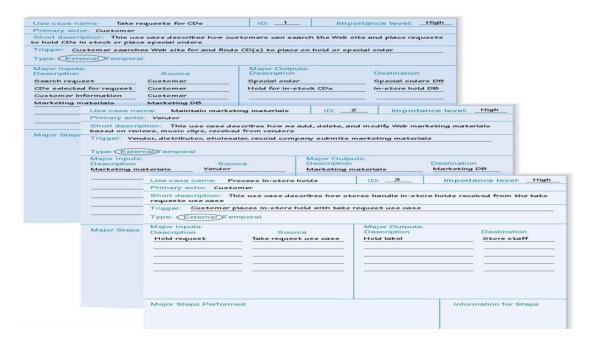
# **Step 3: Identify elements within steps**

Activities	Typical Questions Asked
For each step, identify its triggers and its inputs and outputs	Ask <i>how</i> about each step How does the person know when to perform this step? What forms/reports/data does this step produce? What forms/reports/data does this step need? What happens when this form/report/data is not available?

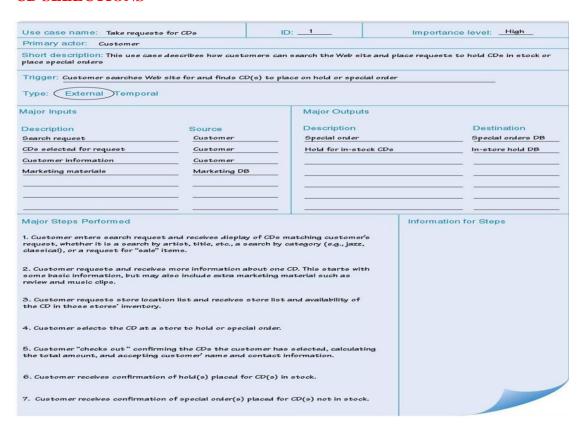
# Step 4: Confirm the use case

Activities	Typical Questions Asked	
•For each use case, validate that it is correct and complete	•Ask the user to execute the process using the written steps in the use case – that is, have the user role-play the use case	

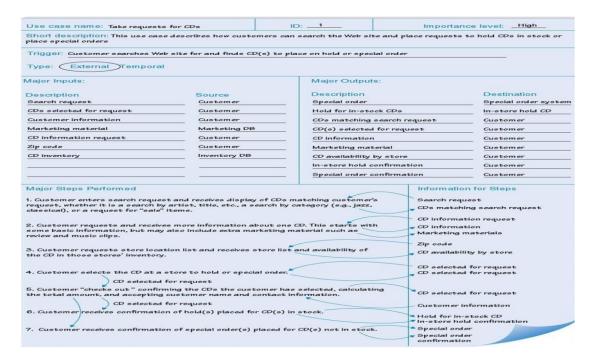
#### **CD SELECTIONS**



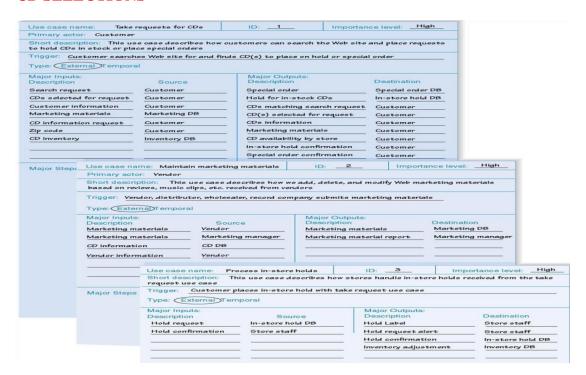
#### **CD SELECTIONS**



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# **Summary**

- Use cases contain all the information needed for process modeling, but are easier for users to comprehend
- Use cases are created in an iterative cycle of steps until they are considered accurate and complete