Use cases

Dr. Muhammad Taimoor Khan

Use Cases

- Capture the specific ways of using the system as dialogues between an actor and the system.
- Use cases are used to
  - Capture system requirements
  - Communicate with end users
  - Test the system

Naming Use Cases

- Must be a complete process from the viewpoint of the end user.
- Usually in verb-object form, like Buy Pizza
- Use enough detail to make it specific
- Use active voice, not passive
- From viewpoint of the actor, not the system

Use Case Name Examples

- Excellent - Purchase Concert Ticket
- Very Good - Purchase Concert Tickets
- Good - Purchase Ticket (insufficient detail)
- Fair - Ticket Purchase (passive)
- Poor - Ticket Order (system view, not user)
- Unacceptable - Pay for Ticket (procedure, not process)

Use cases Template
source: www.usecases.org

- Name
- Primary Actor
- Scope
- Stakeholders and Interests
- Pre-condition
- Success Guarantee
- Main Success Scenario
- Extensions

Optional Items

- You can add some of the following items
  - Trigger (after Success Guarantee)
- (at end:)
  - Special requirements (interests of actors)
  - Technology and Data Variations
  - Frequency of Occurrence
  - Open Issues (various business decisions)

USE CASE : Process Sale

(FULLY DRESSED VERSION)

- Primary Actor: Cashier
- Stakeholders and Interests:
  - Cashier: Wants accurate and fast entry, no payment errors, …
  - Salesperson: Wants sales commissions updated. …
- Preconditions: Cashier is identified and authenticated.
- Success Guarantee (Post conditions):
  - Sale is saved. Tax correctly calculated….
- Main success scenario (or basic flow):
- Extensions (or alternative flows):
- Special requirements: Touch screen UI, …

Use case (contd…)

- Technology and Data Variations List:
- Identifier entered by bar code scanner,…
- Open issues: What are the tax law variations? …
- Main success scenario (or basic flow):
- The Customer arrives at a POS checkout with items to purchase.
- The cashier records the identifier for each item. If there is more than one of the same item, the Cashier can enter the quantity as well.
- The system determines the item price and adds the item information to the running sales transaction. The description and the price of the current item are presented.

Use case (contd…)

- On completion of item entry, the Cashier indicates to the POS system that item entry is complete.
- The System calculates and presents the sale total.
- The Cashier tells the customer the total. The Customer gives a cash payment (“cash tendered”) possibly greater than the sale total.

- Extensions (or alternative flows):

- If invalid identifier entered. Indicate error.
- If customer didn’t have enough cash, cancel sales transaction.

Goals and Scope of a Use Case

- At what level and scope should use cases be expressed?
- A Focus on use cases at the level of **elementary business process** (EBP).

EBP: a task performed by one person in one place at one time which adds measurable business value and leaves the data in a consistent state.

Approve credit order - OK.

It is usually useful to create separate “sub” use cases representing subtasks within a base use case. e.g. Paying by credit

Elements in the Preface

- Only put items that are important to understand before reading the Main Success Scenario.

  These might include:
- Name (*Always needed for identification*)
- Primary Actor
- Stakeholders and Interests List
- Preconditions
- Success guarantee (Post Conditions)

CRUD

- Examples of bad use case names with the acronym CRUD. (All are procedural and reveal nothing about the actor's intentions.)
- C - actor Creates data
- R - actor Retrieves data
- U - actor Updates data
- D - actor Deletes data

Identify Actors

- We cannot understand a system until we know who will use it
  - Direct users
  - Users responsible to operate and maintain it
  - External systems used by the system
  - External systems that interact with the system

Types of Actors

- Primary Actor
  - Has goals to be fulfilled by system
- Supporting Actor
  - Provides service to the system
- Offstage Actor
  - Interested in the behavior, but no contribution
- In diagrams, Primary actors go on the left and others on the right.

Define Actors

- Actors should not be analyzed or described in detail unless the application domain demands it.
- Template for definition:
  - Name
  - Definition
- Example for an ATM application:

Customer: Owner of an account who manages account by depositing and withdrawing funds

Working with Use Cases

- Determine the actors that will interact with the system
- Examine the actors and document their needs
- For each separate need, create a use case
- During Analysis, extend use cases with interaction diagrams

Preconditions

- Anything that must always be true before beginning a scenario is a precondition.
- Preconditions are assumed to be true, not tested within the Use Case itself.
- Ignore obvious preconditions such as the power being turned on. Only document items necessary to understand the Use Case.

Success Guarantees

- Success Guarantees (or Post conditions) state what must be true if the Use Case is completed successfully. This may include the main success scenario and some alternative paths. For example, if the happy path is a cash sale, a credit sale might also be regarded a success.