# Use Case Model

Use case description

# Full Use Case Description

- Shows steps (“Flow of Events”) in more detailed and are structured; they dig deeper

# A Recommended Template:

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

# Use Cases Basics

- A use case has four mandatory elements:
  1. **Name**: Each use case has a unique name describing what is achieved by the interaction with the actor.

     **EX:** "Turn Light On/Off" and "Print Document" are good examples.
  2. **Brief description**: The purpose of the use case should be described in one or two sentences.

     **EX:** "This use case controls the selected light bank when instructed by the actor Homeowner.“
  3. **Actor(s)** List each actor that participates in the use case.
  4. **Flow of events**: The heart of the use case is the event flow, usually a textual description of the interactions between the actor and the system.
     - The main (basic) flow of events
     - The alternate flows of events

# Use Cases Basics

- Optional elements in a Use case:
  - **Pre-conditions**: Must be present in order for a use case to start. Represent some system state that must be present before the use case can be used.

    **EX**: A pre-condition of the "Print Author's Manuscript Draft" use case is that a document must be open.
  - **Post-conditions**: Describe the state of the system after a use case has run. Represent persistent data that is saved by the system as a result of executing the use case.

    **EX**: Post-condition of “Register" use case is that the new data is added in the profile of the student.
  - **Other stakeholders**: Other key stakeholders who may be affected by the use case.

    **EX**: A manager may use a report built by the system, and yet the manager may not personally interact with the system in any way and therefore would not appear as an actor on the system.

# 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.

- Same description that is usually captured in initial Use Case Diagrams

# Full Use Case Description

- Telephone Order Scenario for Create New Order Use Case

| | |
|---|---|
| **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*<br>Extend: *Maintain customer information* |
| **Stakeholders:** | Sales department: to provide primary definition<br>Shipping department: to verify that information content is adequate for fulfillment<br>Marketing department: to collect customer statistics for studies of buying patterns |
| **Preconditions:** | Customer must exist.<br>Catalog, Products, and Inventory items must exist for requested items. |
| **Postconditions:** | Order and order line items must be created.<br>Order transaction must be created for the order payment.<br>Inventory items must have the quantity on hand updated.<br>The order must be related (associated) to a customer. |

# Full Use Case Description

- Telephone Order Scenario for Create New Order Use Case

| | |
|---|---|
| **Flow of Events:** | |
| | 1. Sales clerk answers telephone and connects to a customer.<br>2. Clerk verifies customer information.<br>3. Clerk initiates the creation of a new order.<br>4. Customer requests an item be added to the order.<br>5. Clerk verifies the item (*Check item availability* use case).<br>6. Clerk adds item to the order.<br>7. Repeat steps 4, 5, and 6 until all items are added to the order.<br>8. Customer indicates end of order; clerk enters end of order.<br>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.<br>2.2 If customer has a credit hold, then clerk transfers the customer to a customer service representative.<br>4.1 If an item is not in stock, then customer can<br>a. choose not to purchase item, or<br>b. request item be added as a back-ordered item.<br>9.1 If customer payment is rejected due to bad-credit verification, then<br>a. order is canceled, or<br>b. order is put on hold until check is received. |

# Use-Cases – Common Mistakes

- Complex diagram
- No system
- No actor
- Too many user interface details
  - “User types ID and password, clicks OK or hits Enter”
- Very low goal details
  - User provides name
  - User provides address
  - User provides telephone number.

# Writing Use Case Descriptions

1. Select a use case

2. Write abbreviated *full description* (Use case name, Scenario (if any), Business Event, Actors, Flow of steps, Exception conditions)

3. For figuring Flow of steps,

    - Keep in mind general system model: Input-Processing-Output

    - Steps should be at nearly the same level of abstraction (each makes nearly same progress toward use case completion)

4. For figuring exception conditions, focus on if-then logic.

# Library Information System

- The SE VLabs Institute has been recently setup to provide state-of-the-art research facilities in the field of Software design and analysis. Apart from research scholars (students) and professors, it also includes quite a large number of employees who work on different projects undertaken by the institution.
- As the size and capacity of the institute is increasing with the time, it has been proposed to develop a Library Information System (LIS) for the benefit of students and employees of the institute. LIS will enable the members to borrow a book (or return it) with ease while sitting at his desk/chamber. The system also enables a member to extend the date of his borrowing if no other booking for that particular book has been made. For the library staff, this system aids them to easily handle day-to-day book transactions. The librarian, who has administrative privileges and complete control over the system, can enter a new record into the system when a new book has been purchased, or remove a record in case any book is taken off the shelf. Any non-member is free to use this system to browse/search books online. However, issuing or returning books is restricted to valid users (members) of LIS only.

***Write down the scenario as well as the narrative for the issuance of the book.***

# Narrative Exercise

- Write down the narrative for the scenario given below

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

# Home Work Exercise

- Write down the narrative for the scenario given below

***A patient calls the clinic to make an appointment for a yearly checkup. The receptionist finds the nearest empty time slot in the appointment book and schedules the appointment for that time slot.***