CSc 131 – Computer Software Engineering

An exercise to create a Use Case Diagram and build a sample Use Case

Agenda

- Midterm preparation: build a use case diagram and a sample use case for an ATM system.

- Your participation: to ready for your midterm.

In fact: Make it a surprise-in-class-quiz ☺

Here are the scenarios:

Scenarios: ATM banking:

Cathy Jones places her bank card into the ATM.

Cathy successfully logs into the ATM using her personal identification number.

Cathy deposits her weekly paycheck of $350 into her savings account

Cathy attempts to withdraw $100 from her savings account for the weekend but discovers that she has insufficient funds

Cathy withdraws $40 and gets her card back

Cathy deposits $20 to her checking account

Here are the scenarios (cont):

Scenarios: ATM banking:

Bob, as a bank technician, restocks cash, envelope, receipt paper at night while there is NO customer around.

Bob also collects cash from the ATM and returns to the bank ‘s main office.

ATM logs all user transactions

Exercise

1. List main system functions (**use cases**) – think of business events demanding system's response – users' goals/needs to be accomplished via the system (CHOOSE ONLY 4 MAIN ONES)

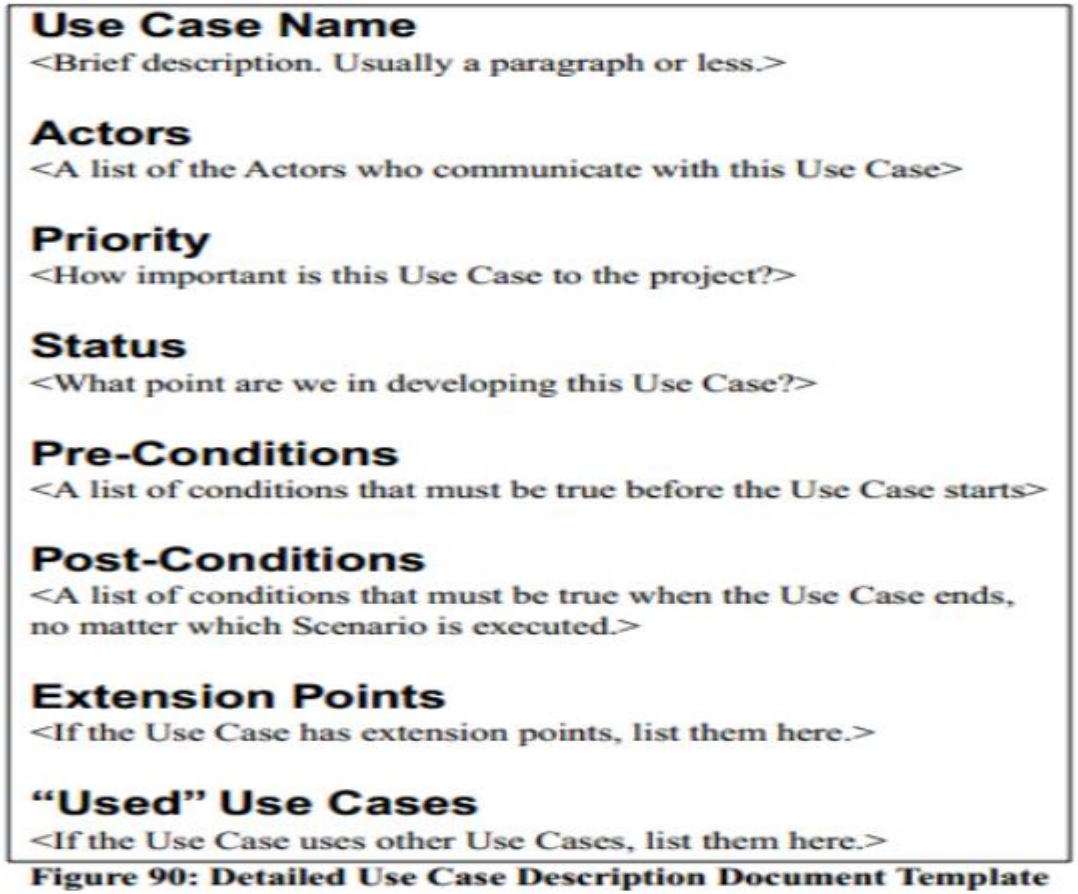
2. Define **system boundary**

3. Draw **actors** and connect them with use cases

4. Specify **include** and **extend** relationships between use cases

Exercise (Cont)

5. Build a Withdraw Use Case Specification using the following format:



Use Case Name
<Brief description. Usually a paragraph or less.>

Actors
<A list of the Actors who communicate with this Use Case>

Priority
<How important is this Use Case to the project?>

Status
<What point are we in developing this Use Case?>

Pre-Conditions
<A list of conditions that must be true before the Use Case starts>

Post-Conditions
<A list of conditions that must be true when the Use Case ends, no matter which Scenario is executed.>

Extension Points
<If the Use Case has extension points, list them here.>

"Used" Use Cases
<If the Use Case uses other Use Cases, list them here.>

Figure 90: Detailed Use Case Description Document Template

Please also include :

Basic Flow of Events

Alternative Flows

Use Case

A use case describes a sequence of actions that provide a measurable value to an actor. A use case is drawn as a horizontal ellipse on a UML use case diagram.

System boundary

The rectangle around the use cases is called the system boundary box and as the name suggests it indicates the scope of your system - the use cases inside the rectangle represent the functionality that you intend to implement.

Actor

An actor is a person, organization, or external system that plays a role in one or more interactions with your system (actors are typically drawn as stick figures on UML Use Case diagrams).

<<Include>>

Used to show that behavior of the **included** use case (the addition) is inserted into the behavior of the **including** (the base) use case.

The **include** relationship could be used:

- to simplify large use case by splitting it into several use cases,
- to extract **common parts** of the behaviors of two or more use cases.

<<Extend>> Relation

specifies how and when the behavior defined in usually supplementary (optional) **extending use case** can be inserted into the behavior defined in the **extended use case**.

Here are the scenarios (detailed):

Scenario: A successful withdrawal attempt at an automated teller machine (ATM).

John Smith presses the "Withdraw Funds" button

The ATM displays the preset withdrawal amounts ($20, $40, and so on)

John chooses the option to specify the amount of the withdrawal

The ATM displays an input field for the withdrawal amount

John indicates that he wishes to withdraw $50 dollars

The ATM displays a list of John's accounts, a checking and two savings accounts

John chooses his checking account

The ATM verifies that the amount may be withdrawn from his account

The ATM verifies that there is at least $50 available to be disbursed from the machine

The ATM debits John's account by $50

The ATM disburses $50 in cash

The ATM displays the "Do you wish to print a receipt" options

John indicates "Yes"

The ATM prints the receipt