

## UML Tutorial : Use Case Diagram

A Use Case Diagram describes how your program will solve the problem. With them you describe what is required and how to meet those requirements. You don't use them to model code. They normally include interactions between your system and an Actor (Human / External System). You need to define what requirements Shall (Must) be met and those that Should be met, but are not critical.

### Description

A Use Case description defines all the things your system is going to do.

The user enters their card and PIN. Security verifies the card. The user selects the account to use. They select an amount. Security verifies if the amount is available. The system comes to a conclusion on if money is provided. The user selects funds as \$10s or \$20s. Security provides the funds if possible. Security provides a receipt and the users card.

You also often define Triggers which are actions that cause your system to start (Receive Card & PIN).

You also often describe the Actors being the people or systems that interact with your system. You may have Preconditions which are actions that must be true for your system to operate (Secure Bank Connection & ATM has Cash).

You also want to list what constitutes a Successful Conclusion (Secure Client Account & Provide Customer Funds).

List Failed Conclusions : Invalid Card, Invalid PIN, Customer or ATM Insufficient Funds, Over Daily Limit, Stolen Card. Extensions (Optional) : Invalid PIN 3 Times, Card Stolen

### Designing a Use Case

A stereotype / Actor is a person, or system. Our Bank Customer and our Security System are stereotypes.

In notes you provide additional information that you want associated with the Bank Customer in this example.

Insert Card is a Use Case. It is connected to Bank Customer using a Communication Line.

The box that separates your system from the actors is called a system boundary line.

Use Include when you want 1 Use Case to use another. When a Card or PIN is entered we want to verify the card.

Extend is used when a Use Case is optional. In this case we are saying that if the card can't be verified then we want to extend this as a Stolen Card and not return it. Extend means that we are not required to take this step.

The difference between Include and Extend is that Include is needed functionality while Extend is optional.

Select Amount is a General Use Case while Amount is a more specific Use Case.