

Activity Diagram for the ATM System

Let's create some activity diagrams for the ATM.

We'll cover the following

- The cardholder performs ATM transactions
 - States
 - Actions
- Activity challenge: The cardholder performs an ATM cash withdrawal

An activity diagram is a great way to visualize the flow of messages from one activity to the other in the system. There can be different activity diagrams that we can create for our ATM. In this lesson, we will create activity diagrams for the following two activities:

- The cardholder performs ATM transactions.
- Activity challenge:** The cardholder performs an ATM cash withdrawal.

The cardholder performs ATM transactions

The followings are the states and actions that will be involved in this activity diagram.

States

Initial state: The cardholder inserts an ATM card.

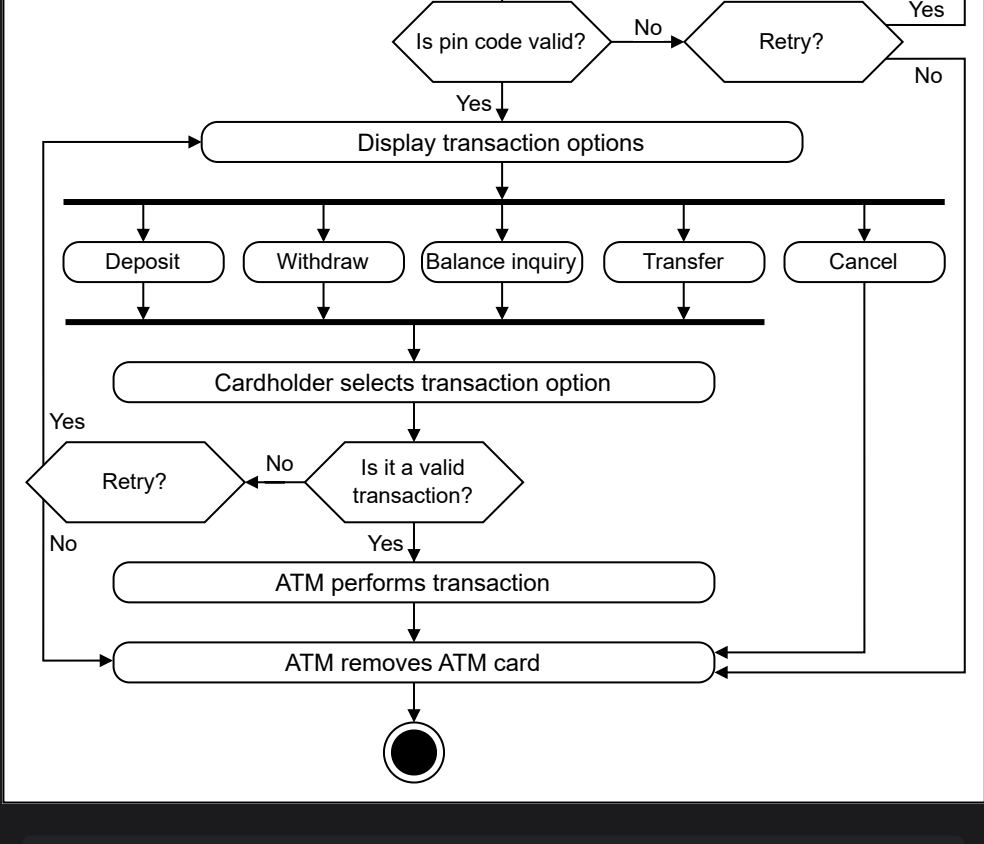
Final state: There are two final states in this activity diagram as shown below:

- The cardholder gets an error message for the wrong ATM PIN.
- The cardholder performs a transaction successfully.

Actions

The cardholder approaches the ATM, inserts their card, and enters their PIN. If the PIN is correct, they are allowed to perform a transaction. If the PIN is incorrect, the ATM returns the card. The cardholder then has the option to select from four different transactions. After completing their chosen transaction, the cardholder receives their card back from the ATM.

Based on the order above, the activity diagram is given below.

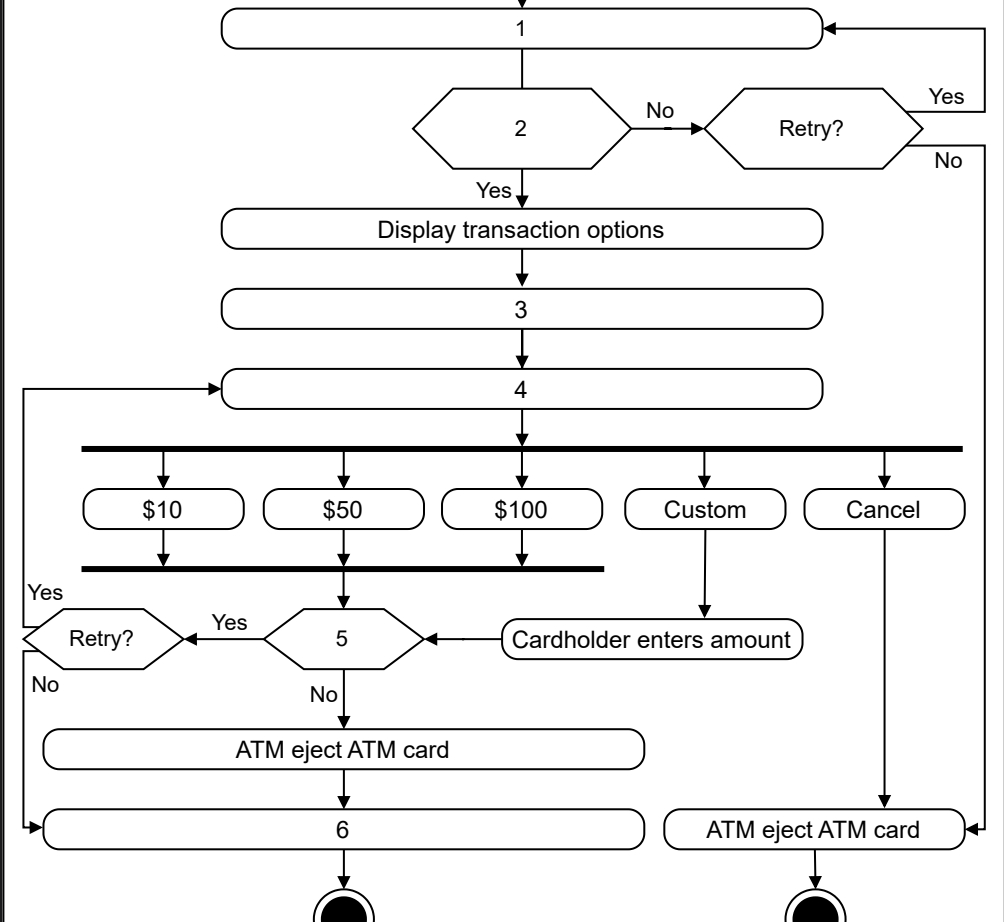


The activity diagram for the cardholder performing ATM transactions

Activity challenge: The cardholder performs an ATM cash withdrawal

You'll help us create an activity diagram of a cardholder performing an ATM cash withdrawal.

The skeleton of the activity diagram is shown below.



The activity diagram of the cardholder performing an ATM cash withdrawal

Notice that the actions in the diagram above are numbered from 1 to 6. The slots shown below represent the activities, and the arrows represent the flow from one activity to the other. Can you rearrange the slots below in the correct order they should appear in the activity diagram above?

Note: If you are unsure, click the “Show Solution” button for the correct answer.

Rearrange slots with the correct actions for the cardholder performing an ATM cash withdrawal

The cardholder enters the ATM PIN

Is the PIN valid?

The cardholder selects cash withdrawal

Display withdraw options

Amount > account balance

The ATM dispenses money

Reset

Show Solution

Submit

Alternatively, click the "Show complete diagram" button below to see the complete sequence diagram:

Hide complete diagram

```
graph TD
    Start(( )) --> Insert[Cardholder insert ATM card]
    Insert --> EnterPin[Cardholder enter ATM pin code]
    EnterPin --> Valid{Is pin code valid?}
    Valid -- No --> Retry1{Retry?}
    Retry1 -- Yes --> EnterPin
    Retry1 -- No --> DisplayOptions1[Display transaction options]
    Valid -- Yes --> DisplayOptions1
    DisplayOptions1 --> SelectCash[Cardholder select cash withdraw]
    SelectCash --> DisplayOptions2[Display withdraw options]
    DisplayOptions2 --> OptionsBar[ ]
    OptionsBar --> Ten[$10]
    OptionsBar --> Fifty[$50]
    OptionsBar --> Hundred[$100]
    OptionsBar --> Custom[Custom]
    OptionsBar --> Cancel[Cancel]
    OptionsBar --> EnterAmount[Cardholder enters amount]
    EnterAmount --> ValidAmount{Amount > account balance}
    ValidAmount -- Yes --> Retry2{Retry?}
    Retry2 -- Yes --> EnterAmount
    Retry2 -- No --> Dispense[ATM dispense money]
    ValidAmount -- No --> EjectCard1[ATM eject ATM card]
    EjectCard1 --> Dispense
    Cancel --> EjectCard2[ATM eject ATM card]
    EjectCard2 --> Dispense
    Dispense --> End1((( )))
    EjectCard1 --> End2((( )))
    EjectCard2 --> End2
```