# Subflows

## Assess Funds on Hand

1 The system determines whether it has sufficient funds on hand to dispense the requested amount.

* + - * 1. The system checks to see if the total amount requested is greater than the amount on hand.
        2. The system checks to see if the requested amount can be dispensed with the denominations on hand. Note that it is possible to have sufficient funds in total and still be unable to dispense funds – consider the case where the customer has requested $35 but the system only has $40 in the form of two $20 bills.

2 If there are not sufficient funds on hand the system:

a Informs the customer that the amount requested is not available from the ATM

b Offers the customer a choice of the nearest available amount (s). If the amount requested was rejected because the correct denomination notes were not available then both the nearest amounts below and above that requested are offered. If the amount requested was rejected because it was higher than the amount of fund available then the nearest amount below that requested is offered.

3 The customer selects an amount to be withdrawn.

4 The flow of events resumes at the next step.

## Conduct Withdrawal

**{Validate the Withdrawal}**

1. The system supplies the Bank System with the **bank card** information, the amount of the requested withdrawal, the **ATM Session Identifier** and the **transaction fee** and asks it to approve the withdrawal.
2. The Bank System responds with a **withdrawal acceptance** to approve the withdrawal.

**{Log the Authorization}**

3 The system records a **transaction log** entry for the authorized withdrawal including the information that the cash is still to be dispensed.

**{Return to Performing Flow}**

1. Resume at the next step.

## Service Shutdown

1. The ATM displays the fact that it is out of order and that no **service options** are available.

2 The system turns off the card reader to prevent the insertion of any more cards.

3 The system creates an **event log** entry to record the fact that the system has switched off all customer services. The **event log** entry includes the time of the of service shutdown. If the recording of the event log fails the system just ignores it.

4 If they are still contactable the system sends the **event log** entry to the Service Administrator and the Bank System to inform them that the ATM is out of order. If they are not available the system continues to attempt to inform them of the current state of the system.

5 The use case ends.

## Handle Transaction Adjustments

1 The system calculates the adjustment required by the Banking System for this withdrawal by subtracting the amount of cash dispensed from the amount approved for withdrawal.

2 The system informs the Bank System of the amount of the adjustment also specifying the **bank card information,** and the **ATM Session Identifier**.

3 The Bank System accepts or rejects the adjustment.

1. The system records a **transaction log entry** for the adjustment indicating whether the transaction was accepted or rejected and including the Bank System’s response.
2. Resume at the next step.

# Post Conditions

* The ATM has returned the card and dispensed the cash to the customer and the withdrawal is registered on the customer’s account.
* The ATM has returned the card to the customer and no withdrawal is registered on the customer’s account.
* The ATM has returned the card, but neither cash nor receipt, to the customer and the withdrawal is registered on the customers account; the failure to dispense is registered in the logs.
* The ATM has kept the card, no withdrawal has registered on the customer’s account and the customer has been notified where to contact for more information.

# Special Requirements

## Reliable Cash Dispensing

The ATM shall dispense the correct amount of cash in at least 99% of cash withdrawals.

# Extensibility

No public extension points defined.