

Example Use Case Specification:

Level 1 – Identified

Use Case Name:	Withdraw Cash
Actor(s):	Any Bank Customer (primary) Banking System (secondary)
Other Stakeholders:	All Banks (ATM owner and account owner) LINK (communication between banks) FSA (bank regulation)
Summary Description:	Allows any bank customer to obtain cash from their bank account.
Priority:	Must Have
Risk Level:	High
Status:	Identified

Example Use Case Specification:

Level 2 – High Level

Use Case Name:	Withdraw Cash
Actor(s):	Any Bank Customer (primary) Banking System (secondary)
Other Stakeholders:	All Banks (ATM owner and account owner) LINK (communication between banks) FSA (bank regulation)
Summary Description:	Allows any bank customer to obtain cash from their bank account.
Priority:	Must Have
Risk Level:	High
Status:	High Level
Pre-Condition:	The ATM is operational The bank customer has a card to insert into the ATM
Post-Condition:	The bank customer has received their cash (and optionally a receipt) The bank has debited the customer's bank account and recorded details of the transaction
Basic Path:	<ol style="list-style-type: none">1. The customer enters their card into the ATM2. The ATM verifies that the card is a valid bank card3. The ATM requests a PIN code4. The customer enters their PIN code5. The ATM validates the bank card against the PIN code6. The ATM presents service options including "Withdraw"7. The customer chooses "Withdraw"8. The ATM presents options for amounts9. The customer selects an amount or enters an amount10. The ATM verifies that it has enough cash in its hopper11. The ATM verifies that the customer is below withdraw limits12. The ATM verifies sufficient funds in the customer's bank account13. The ATM debits the customer's bank account14. The ATM returns the customer's bank card15. The customer takes their bank card16. The ATM issues the customer's cash17. The customer takes their cash

Alternative Paths:*(identified only)*

- 2a Invalid card
- 2b Card upside down
- 5a Stolen card
- 5b PIN invalid
- 10a Insufficient cash in the hopper
- 10b Wrong denomination of cash in the hopper
- 11a Withdrawal above withdraw limits
- 12a Insufficient funds in customer's bank account
- 14a Bank card stuck in machine
- 15a Customer fails to take their bank card
- 16a Cash stuck in machine
- 17a Customer fails to take their cash
- *a ATM cannot communicate with Banking System
- *b Customer does not respond to ATM prompt

Business Rules:*(identified only)*

- B1: Format of PIN
- B2: Number of PIN retries
- B3: Service options
- B4: Amount options
- B5: Withdraw limits

Non-Functional Requirements:*(identified only)*

- NF1: Time for complete transaction
- NF2: Security for PIN entry
- NF3: Time to allow collection of card and cash
- NF4: Language support
- NF5: Blind and partially blind support

Example Use Case Specification:

Level 3 – Fully Detailed

Use Case Name:	Withdraw Cash
Actor(s):	Any Bank Customer (primary) Banking System (secondary)
Other Stakeholders:	All Banks (ATM owner and account owner) LINK (communication between banks) FSA (bank regulation)
Summary Description:	Allows any bank customer to obtain cash from their bank account.
Priority:	Must Have
Risk Level:	High
Status:	Fully Detailed
Pre-Condition:	The ATM is operational The bank customer has a card to insert into the ATM
Post-Condition:	The bank customer has received their cash (and optionally a receipt) The bank has debited the customer's bank account and recorded details of the transaction
Basic Path:	<ol style="list-style-type: none">1. The customer enters their card into the ATM2. The ATM verifies that the card is a valid bank card3. The ATM requests a PIN code4. The customer enters their PIN code5. The ATM validates the bank card against the PIN code6. The ATM presents service options including "Withdraw"7. The customer chooses "Withdraw"8. The ATM presents options for amounts9. The customer selects an amount or enters an amount10. The ATM verifies that it has enough cash in its hopper11. The ATM verifies that the customer is below withdraw limits12. The ATM verifies sufficient funds in the customer's bank account13. The ATM debits the customer's bank account14. The ATM returns the customer's bank card15. The customer takes their bank card16. The ATM issues the customer's cash17. The customer takes their cash

(Note: Steps 1-6 and related alternate paths, business rules and non-functional requirements could become a separate 'include' use case at this stage – when it is recognised that they are reused for other use cases)

Alternative Paths:

(fully detailed)

2a Invalid card

1. The ATM indicates that it is the wrong type of card
2. The ATM asks the customer to insert another card
3. Rejoin the basic path at step 2

2b Card upside down

1. The ATM indicates that the card is upside down
2. The ATM asks the customer to insert the card again
3. Rejoin the basic path at step 2

5a Stolen card

1. The ATM matches the card number to a stolen card
2. The ATM runs Process Stolen Card use case
3. End use case

(Note: Triggers an 'extend' use case because logic of this alternate path is complex with its own non-functional requirements and business rules)

5b PIN invalid

1. The ATM indicates that the wrong PIN has been entered
2. If permitted number of tries is not exceeded, the ATM asks the customer to enter their PIN again and rejoins the basic path at step 4
3. If permitted number of tries is exceeded, the ATM retains the card and ends the use case

10a Insufficient cash in the hopper

1. The ATM explains the limit on cash
2. The ATM asks the customer to enter a smaller amount
3. Rejoin the basic path at step 9

10b Wrong denomination of cash in the hopper

1. The ATM explains the restriction on denomination
2. The ATM asks the customer to enter a different amount
3. Rejoin the basic path at step 9

11a Withdrawal above withdraw limits

1. The ATM explains the withdrawal limit
2. The ATM asks the customer to enter a smaller amount
3. Rejoin the basic path at step 9

12a Insufficient funds in customer's bank account

1. The ATM explains the restriction on funds in bank account
2. The ATM asks the customer to enter a smaller amount
3. Rejoin the basic path at step 9

14a Bank card stuck in machine

1. The ATM explains the machine malfunction
2. The ATM asks the customer to speak to bank staff
3. End use case

15a Customer fails to take their bank card

1. The ATM prompts the customer to take their card
2. The ATM waits for a period of time
3. If card is not removed, the ATM retains the card
4. End use case

16a Cash stuck in machine

1. The ATM explains the machine malfunction
2. The ATM asks the customer to speak to bank staff
3. End use case

17a Customer fails to take their cash

1. The ATM prompts the customer to take their cash
2. The ATM waits for a period of time
3. If cash is not removed, the ATM retains the cash
4. End use case

***a ATM cannot communicate with Banking System**

1. The ATM explains the communication malfunction
2. The ATM asks the customer to speak to bank staff
3. End use case

***b Customer does not respond to ATM prompt**

1. The ATM prompts the customer to take action
2. The ATM waits for a period of time
3. If action is not taken, the ATM returns the card
4. Customer takes their card
5. End use case

Business Rules:

(fully detailed)

B1: Format of PIN

The PIN is a 4 digit number which is stored on a chip in the card

B2: Number of PIN retries

The customer is allowed to try re-entering their PIN 3 times

B3: Service options

The current service options are: Enquire Balance, Withdraw, Deposit, Change PIN, Transfer, Pay Bill, Top-up Mobile

B4: Amount options

The current amount options are: £10, £20, £40, £60, £100

B5: Withdraw limits

No more than £250 can be withdrawn from a single bank account each day

Non-Functional Requirements:

(fully detailed)

NF1: Time for complete transaction

The withdraw transaction should typically take less than 3 minutes to complete

NF2: Security for PIN entry

The PIN should be encoded and shown as * symbols on the screen when entered by the customer

NF3: Time to allow collection of card and cash

The ATM should leave the cash and card for 30 seconds, and then draw them back inside the machine if not taken by the customer within this time limit

NF4: Language support

The ATM should support the following languages: English, French, German and Spanish

NF5: Blind and partially blind support

The keyboard should contain Braille and its instructions should be printed on the screen in large 36 point font size.