

# **PB007: Banking system**

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Jaroslav Cechak, Tomas Effenberger, Jiri Mauritz

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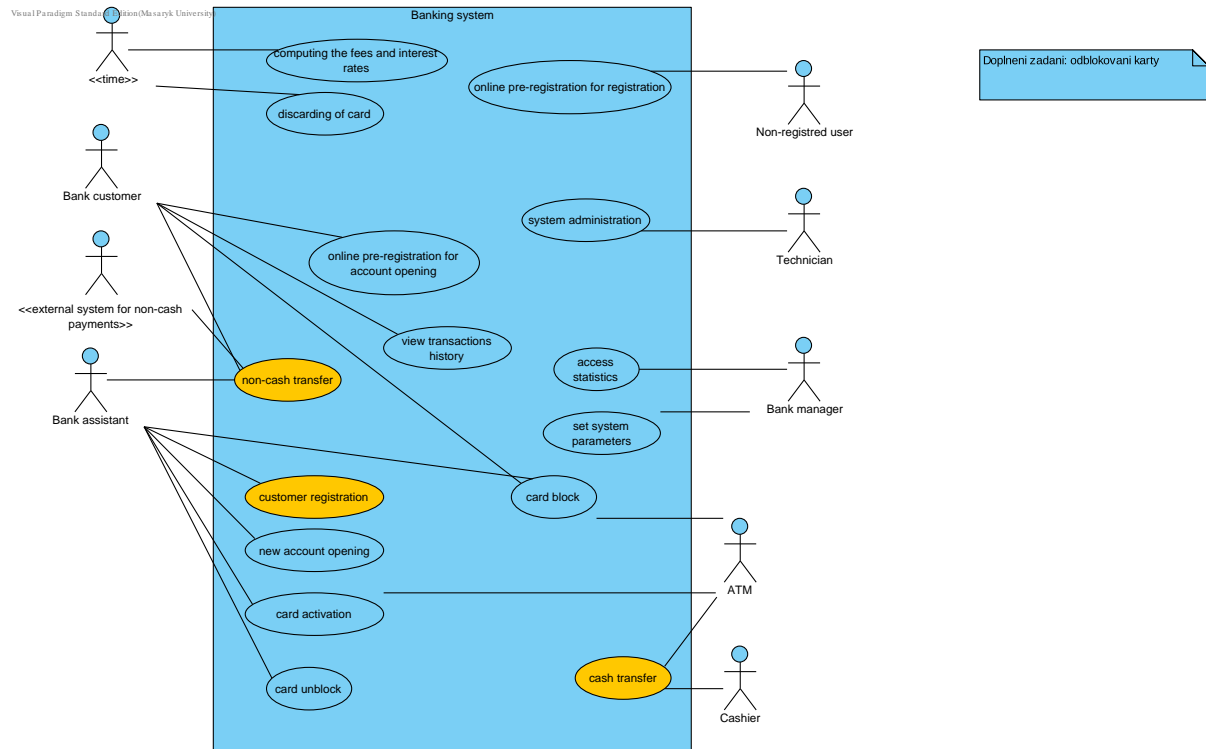
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## Use Case Diagram

## Use Case Diagram



## Summary

Name	Documentation
Bank assistant	
Bank customer	
<<external system for non-cash payments>>	
<<time>>	
ATM	
Cashier	
Non-registered user	
Technician	
Bank manager	
card unblock	
system administration	
N/A	Doplňeni zadání: odblokování karty
cash transfer	
view transactions history	
set system parameters	
access statistics	

 discarding of card	
 computing the fees and interest rates	
 card activation	
 new account opening	
 customer registration	
 card block	
 non-cash transfer	
 online pre-registration for account opening	
 online pre-registration for registration	
 Banking system	

## Documentation

### Functional Requirements (F)

1. Bank customer
  - 1.1. Online pre-registration for registration
  - 1.2. Online pre-registration for account opening
  - 1.3. Money transfer
    - 1.3.1. Authorization
      - The authorization code can be entered at most three times (each time within 5 minutes from its delivery). If the code is entered three times unsuccessfully (wrong code or entered late), the whole transaction is canceled and the reserved money (for the transaction) is unblocked.
  - 1.4. See transactions history
  - 1.5. Card block
2. Bank manager
  - 2.1. Statistics (including future predictions)
  - 2.2. Set system parameters
    - 2.2.1. interest rates of savings accounts
    - 2.2.2. fees
3. Bank assistant
  - 3.1. Customer registration
  - 3.2. New account opening
    - 3.2.1. Checking account or savings account
    - 3.2.2. CZK or EUR
  - 3.3. Money transfer
  - 3.4. Card activation
  - 3.5. Card block
  - 3.6. Card unblock
4. Cashier
  - 4.1. Money deposit
  - 4.2. Money withdrawal
5. External system for non-cash payments
  - 5.1. Non-cash payment notification
6. Time
  - 6.1. Computing the fees and interest rates

- The computation is based on the priority of the customer, which is derived from how long the customer has been with the bank, and what has been the balance on his/her accounts in the past year.
- 6.2. Discarding of card
- 7. ATM
  - 7.1. Card activation
  - 7.2. Money withdrawal
  - 7.3. Card block
- 8. Technician
  - 8.1. system maintenance
  - 8.2. change the access rights of other users
- 9.

#### Non-functional Requirements (N)

1. Java platform
2. reliability
  - 2.1. backup of all actions (1 year)
  - 2.2. backup of all transactions (10 years)
  - 2.3. accessibility of online banking system 24/7 (99.5% a year)
  - 2.4. accessibility of ATMs 24/7 (98% a year)
3. performance of the online banking system (scalable)
4. security
  - 4.1. authorization via SMS
  - 4.2. use HTTPS for online banking

## Details

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 **Bank assistant**

 **Bank customer**

 **<<external system for non-cash payments>>**

 **<<time>>**

 **ATM**

 **Cashier**

 **Non-registered user**

 **Technician**

 **Bank manager**

 **card unblock**

## Use Case Descriptions

Use Case ID	14
Brief Description	UC14 unblocks a blocked card
Primary Actors	Bank assistant
Secondary Actors	-
Preconditions	
Main Flow of Events	
Alternative Flows	
Post-conditions	

## system administration

### Use Case Descriptions

Use Case ID	6
Brief Description	UC6 enables to update system version, change access rights and view system logs
Primary Actors	Technician
Secondary Actors	-
Preconditions	
Main Flow of Events	
Alternative Flows	
Post-conditions	

## N/A

## cash transfer

### Use Case Descriptions

Use Case ID	14
Brief Description	UC14 enables to withdraw or deposit cash
Primary Actors	Cashier, ATM
Secondary Actors	-
Preconditions	-
Main Flow of Events	<ol style="list-style-type: none"> <li>UC begins when cashier or ATM requests new cash transfer.</li> <li>Actor inputs cash transfer details (account number and amount, which can be both positive (money deposit) or negative (money withdrawal)).</li> <li>IF (actor is ATM): <ol style="list-style-type: none"> <li>Actor inputs authentication details (card number and PIN)</li> <li>IF (authentication details are not valid): <ol style="list-style-type: none"> <li>System dismisses the transfer.</li> </ol> </li> </ol> </li> </ol>

	4. IF (required amount can not be allocated or is not present in cash): 4.1 Dismiss the transfer. 5. System updates customer's account balance.
<b>Alternative Flows</b>	
<b>Post-conditions</b>	Customer's account balance is updated.

## view transactions history

### Use Case Descriptions

<b>Use Case ID</b>	4
<b>Brief Description</b>	UC4 Show history of transactions of the given bank customer
<b>Primary Actors</b>	Bank customer
<b>Secondary Actors</b>	-
<b>Preconditions</b>	
<b>Main Flow of Events</b>	
<b>Alternative Flows</b>	
<b>Post-conditions</b>	

## set system parameters

### Use Case Descriptions

<b>Use Case ID</b>	9
<b>Brief Description</b>	UC9 enables to set various parameters of the system
<b>Primary Actors</b>	Bank manager
<b>Secondary Actors</b>	-
<b>Preconditions</b>	
<b>Main Flow of Events</b>	
<b>Alternative Flows</b>	
<b>Post-conditions</b>	

## access statistics

### Use Case Descriptions

<b>Use Case ID</b>	8
<b>Brief Description</b>	UC8 enables to access statistics of the system for better overview of the system
<b>Primary Actors</b>	Bank manager
<b>Secondary Actors</b>	-
<b>Preconditions</b>	



Main Flow of Events	
Alternative Flows	
Post-conditions	

## discarding of card

### Use Case Descriptions

Main	
Use Case ID	5
Brief Description	UC5 disables card after expiration date
Primary Actors	<<time>>
Secondary Actors	-
Preconditions	
Main Flow of Events	
Alternative Flows	
Post-conditions	

## computing the fees and interest rates

### Use Case Descriptions

Main	
Use Case ID	1
Brief Description	UC1 Computing the fees and interest rates
Primary Actors	<<time>>
Secondary Actors	-
Preconditions	
Main Flow of Events	
Alternative Flows	
Post-conditions	

## card activation

### Use Case Descriptions

Use Case ID	13
Brief Description	UC13 activates new card
Primary Actors	Bank assistant, ATM
Secondary Actors	-
Preconditions	
Main Flow of Events	
Alternative Flows	

Post-conditions	
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## new account opening

### Use Case Descriptions

Use Case ID	12
Brief Description	UC12 opens new account
Primary Actors	Bank assistant
Secondary Actors	-
Preconditions	
Main Flow of Events	
Alternative Flows	
Post-conditions	

## customer registration

### Use Case Descriptions

Use Case ID	11
Brief Description	UC11 registers new bank customer
Primary Actors	Bank assistant
Secondary Actors	-
Preconditions	-
Main Flow of Events	1. IF (contender has filled online pre-registration for registration form): 1.1 retrieve filled personal details from the form 2. ELSE: 2.1 fill contender's personal details 3. fill authentication details (ID, signature pattern) 4. create new customer account
Alternative Flows	Interruptions of the process of customer registration because the person has already has an customer account or problem during providing details about the person.
Post-conditions	New customer account created.

## card block

### Use Case Descriptions

Use Case ID	10
Brief Description	UC10 blocks card and notifies customer about this event
Primary Actors	Bank customer, Bank assistant, ATM

<b>Secondary Actors</b>	Bank customer
<b>Preconditions</b>	
<b>Main Flow of Events</b>	
<b>Alternative Flows</b>	
<b>Post-conditions</b>	

## non-cash transfer

### Use Case Descriptions

<b>Use Case ID</b>	7
<b>Brief Description</b>	UC7 enables to execute non-cash transfer
<b>Primary Actors</b>	Bank customer, Bank assistant, <<external system for non-cash payments>>
<b>Secondary Actors</b>	-
<b>Preconditions</b>	-
<b>Main Flow of Events</b>	<ol style="list-style-type: none"> <li>UC begins when Bank customer or assistant selects "Non-cash payment" or external system requests non-cash payment.</li> <li>Actor inputs non-cash transfer details (amount, receiver's account number) <ol style="list-style-type: none"> <li>IF (actor is bank customer): <ol style="list-style-type: none"> <li>System shows prompt to input SMS verification code.</li> <li>System sends SMS verification code and starts time countdown (5 minutes).</li> <li>Bank customer inputs the code and clicks "Submit the transfer" button.</li> <li>IF (the inputted code is not valid OR timeout expired): <ol style="list-style-type: none"> <li>Dismiss the transfer.</li> </ol> </li> </ol> </li> <li>IF (actor is external system): <ol style="list-style-type: none"> <li>Actor inputs authentication details (card number and PIN)</li> <li>IF (authentication details are not valid): <ol style="list-style-type: none"> <li>Dismiss the transfer.</li> </ol> </li> <li>IF (required amount can not be allocated): <ol style="list-style-type: none"> <li>Dismiss the transfer</li> </ol> </li> </ol> </li> <li>System executes the transfer.</li> </ol> </li></ol>
<b>Alternative Flows</b>	Bank customer may log out of the system anytime.
<b>Post-conditions</b>	Sender's and receiver's account balance is updated.

## online pre-registration for account opening

### Use Case Descriptions

Use Case ID	3
Brief Description	UC3 Enables to fill online pre-registration form for account opening
Primary Actors	Bank customer
Secondary Actors	-
Preconditions	
Main Flow of Events	
Alternative Flows	
Post-conditions	
















## online pre-registration for registration

### Use Case Descriptions

Main	
Use Case ID	2
Brief Description	UC2 Enables to fill online pre-registration form for registration
Primary Actors	Non-registered user
Secondary Actors	-
Preconditions	
Main Flow of Events	
Alternative Flows	
Post-conditions	

## Banking system

## Children

Name	Documentation
 online pre-registration for registration	
 online pre-registration for account opening	
 non-cash transfer	
 card block	
 customer registration	
 new account opening	
 card activation	
 computing the fees and interest rates	
 discarding of card	
 access statistics	
 set system parameters	
 view transactions history	
 cash transfer	
 system administration	
 card unblock	