HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

School of Information and communications technology

Software Requirement Specification

Version 1.0

Project: Internet Banking System

Subject: Software Development

Group Number 1

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Hanoi, 27.12.2018

Table of contents

1 Introduction

1.1 Objective

This document presents the detailed description for Internet Banking System, user group and their usable function. This document also describes the objectives and features of the system, interfaces and constraints of the system in response to external action.

This document is for stakeholders and related software developers.

1.2 Scope

The software product: Internet banking system
- The system will be responsible to:
    - Provide user an interface to transfer money, pay online receipts, do online saving.
    - Provide bank officer an interface to manage bank accounts.

1.3 Glossary

** **Bank Customer**: A person to be known as a customer of the bank there must be either a current account or any sort of deposit account or any sort of deposit account like saving, term deposit, recurring deposit, a loan account or some similar relation.*

** **Bank Officer**: An employee of the bank endowed with the legal capacity to agree to and sign documents on behalf of the institution. The title is usually held by branch managers, assistance managers, loan officiers, and other experienced personnel. Executives and others holding titles such as "Vice President" are considered officers of the bank for legal purposes.*

** **EVN Software**: EVN is a Vietnam Electricity Corporation. EVN Software will sent Digital Receipt to Bank Customer to inform and track EVN's customer easier in terms of purchase.*

** **Bank Consortium**: A Subidiary bank, which numerous other banks create. These banks might create a consortium bank to fund a specific project (such as providing affordable*

homeownership for low- and moderate-income home buyers) or to execute a specific deal (such as selling loans in the loan syndication market).

** **Balances Inquires**: A function to check for available funds on pre-paid credit card in a seperate transaction (not as part of a purchase transaction).*

** **Transaction History Inquires**: Look up payment or receipt transactions originating in account (within a range of dates, amounts, or source currencies).*

** **Transfer Transaction (internal and interbank network)**: When performing an online bank transfer you must access your own account. Determine the amount you would like to send to the receipt. Input their information and authorize the transaction. The entire process is done online.*

** **Electric Receipt Payment**: This is a kind of Digital Receipt, normally sent via e-mail or an app. Unlike paper receipts, e-receipts are used to reduce paper usage. The e-receipt are used to inform the customer of rebates and discounts.*

** **Online Saving**: You put money in the bank. The bank lends you money out to other people and bussiness in form of personal and bussiness loans, charging the borrowers interest on what they owe untill they pay back the money.Meanwhile, the bank pays you interest for privilege of your money. However, we will seperate this action into sub-action more specifically:*

> *+ **Deposit to Saving Account**: Sent the money that you don't intend to use for daily or regular expenses to Saving Account.*

> *+ **Withdraw from Saving Account**: You receive the money with interest after a time interval, maybe a month or a year.*

1.4 References

https://en.wikipedia.org/wiki/Bank

https://en.wikipedia.org/wiki/Consortium
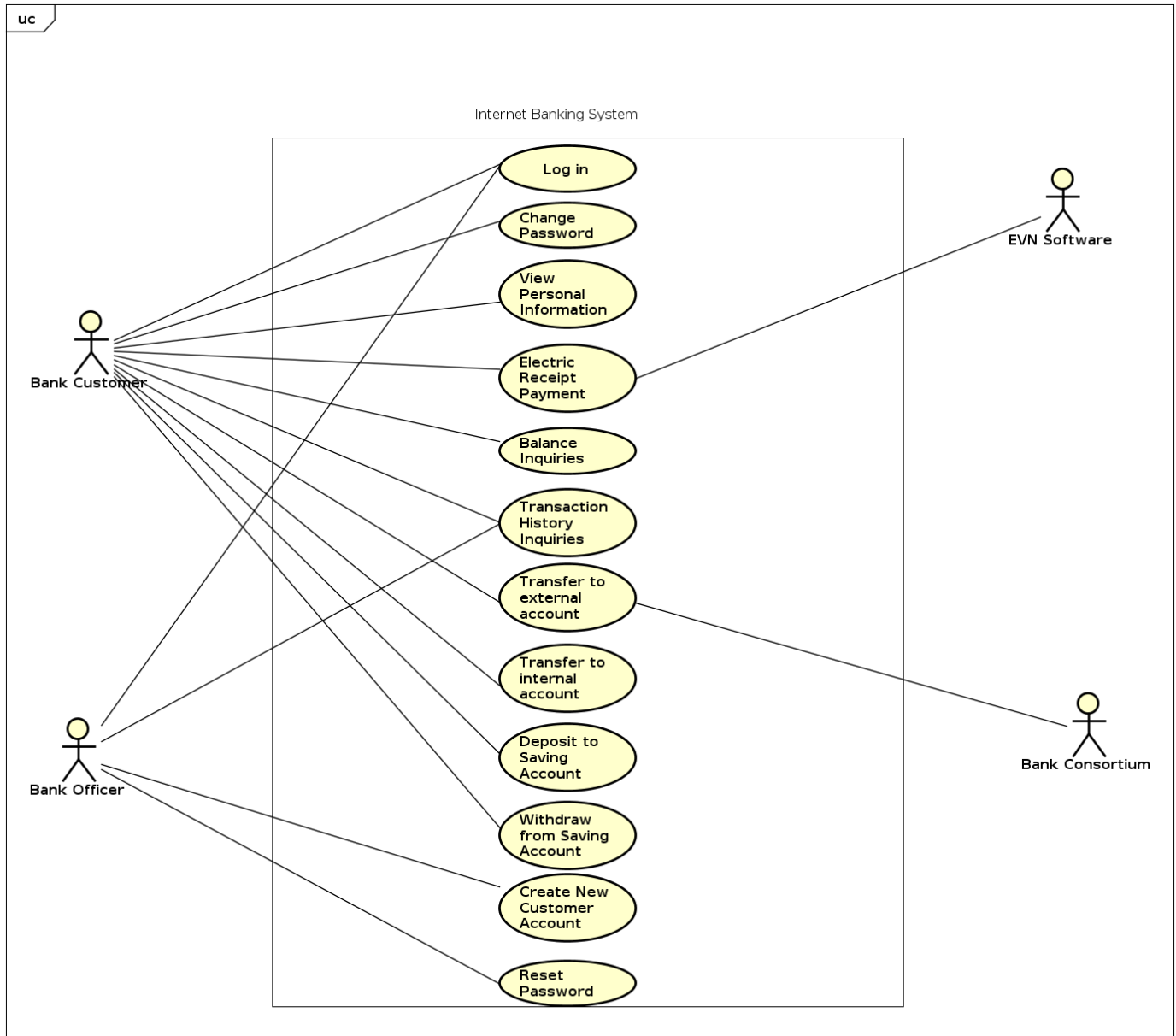
https://en.wikipedia.org/wiki/Electronic_receipt

https://en.wikipedia.org/wiki/Savings_account
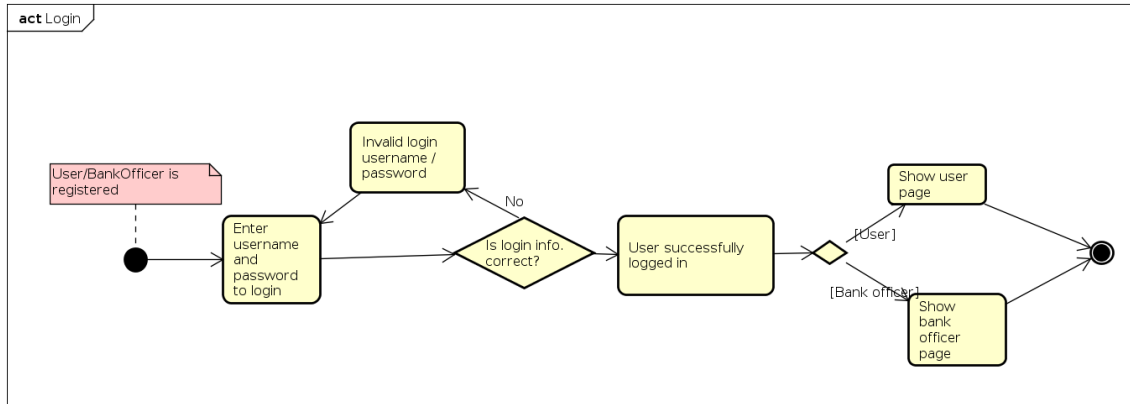
2 Overall Description

2.1 Actors

There are 4 main actors in the system: Bank Customer, Bank Officer, Bank Consortium and EVN Software.
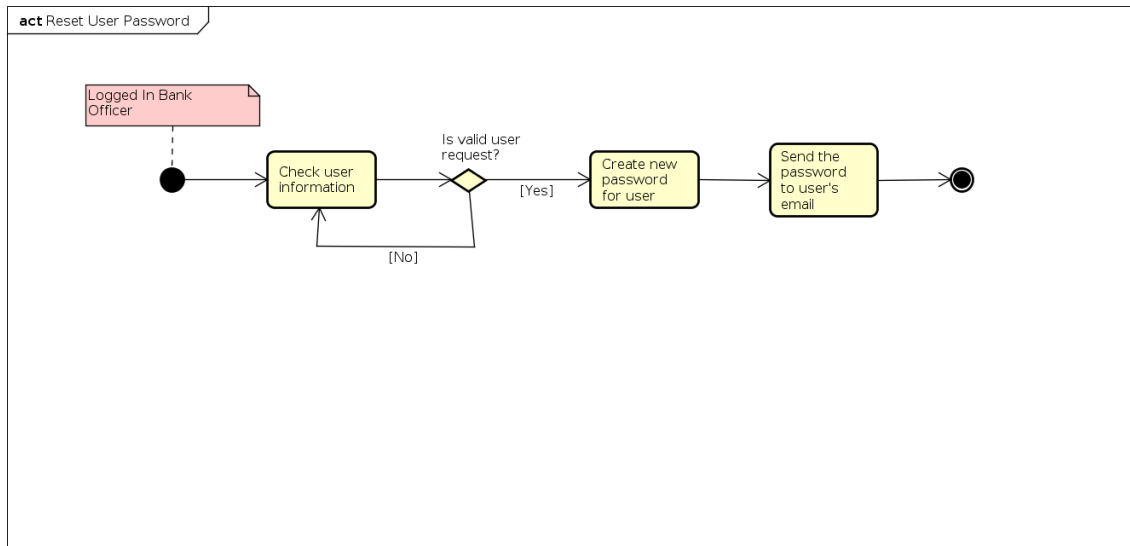
2.2 Overall use case diagram

2.3 Business processes

2.4.1 Process of log in

2.4.2 Process of reset user passwords

2.4.3 Process of change passwords
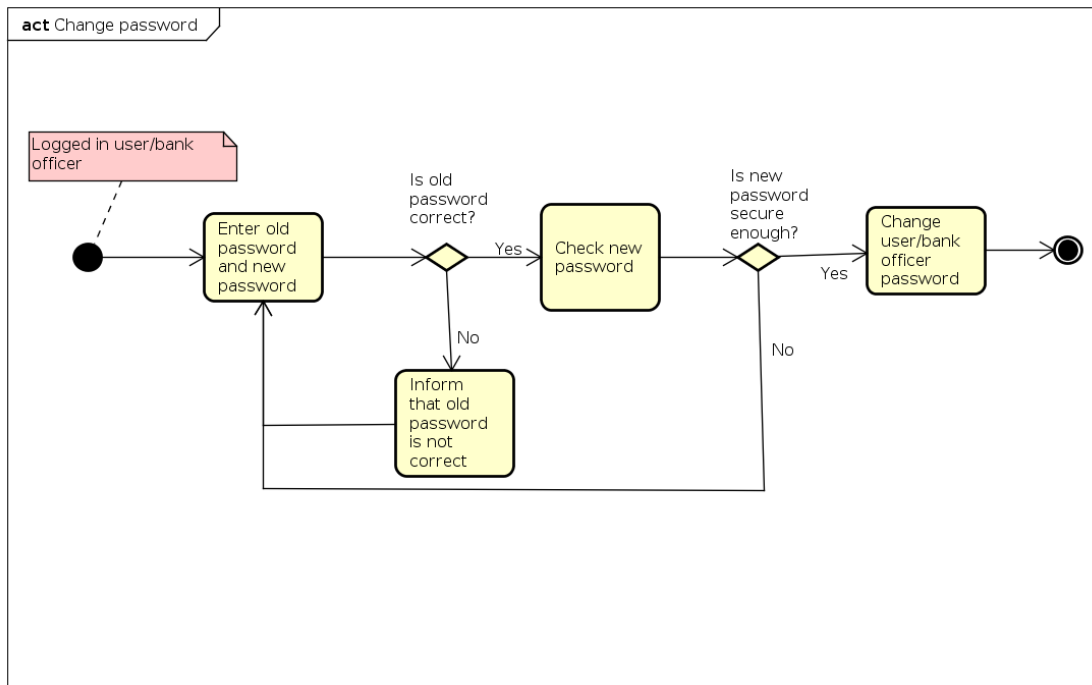
2.4.4 Process of balance inquiries
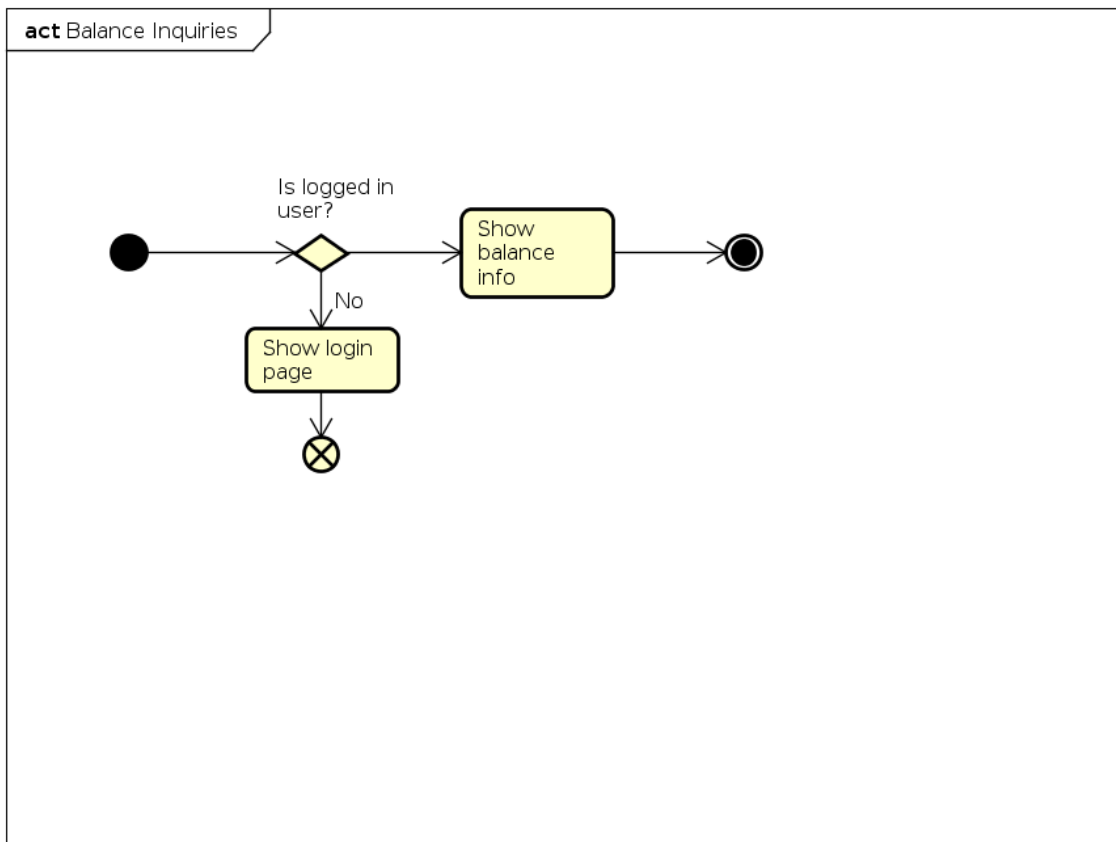
2.4.5 Process of view personal information

act View Personal Info

Is logged in user/bank officer?

Show personal info

No

Show login page
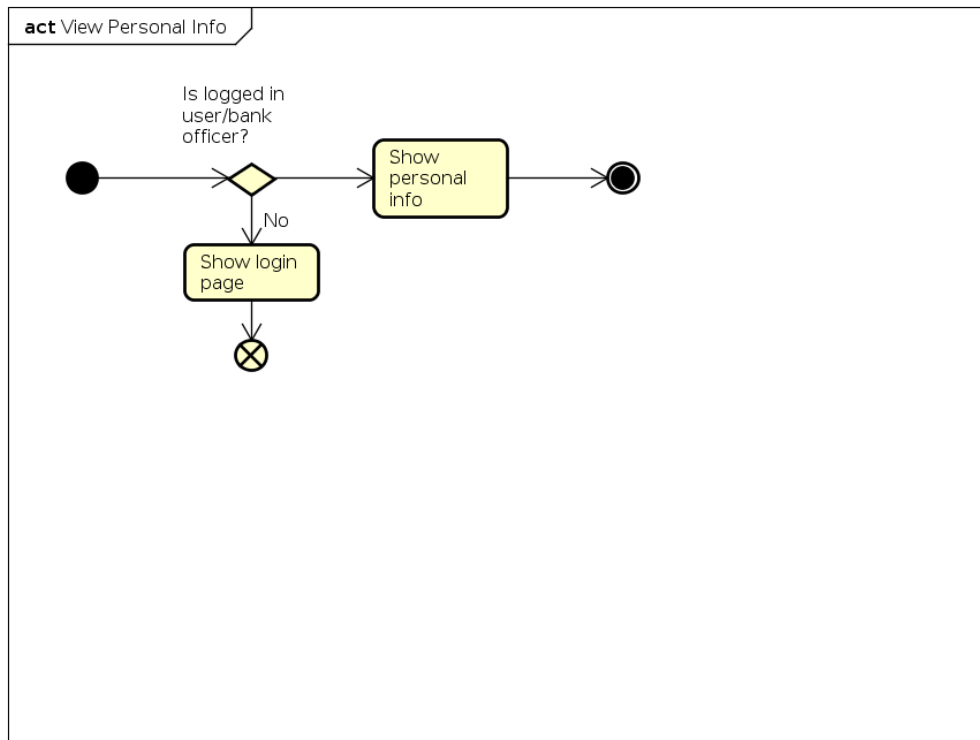
2.4.6 Process of deposit to saving accounts

act Deposit to saving account

Logged in user

Inform not enough money

Enter amount to money to deposit and choose the saving plan

No

Enough money in balance

Transfer money from default balance to saving balance

Save saving account information
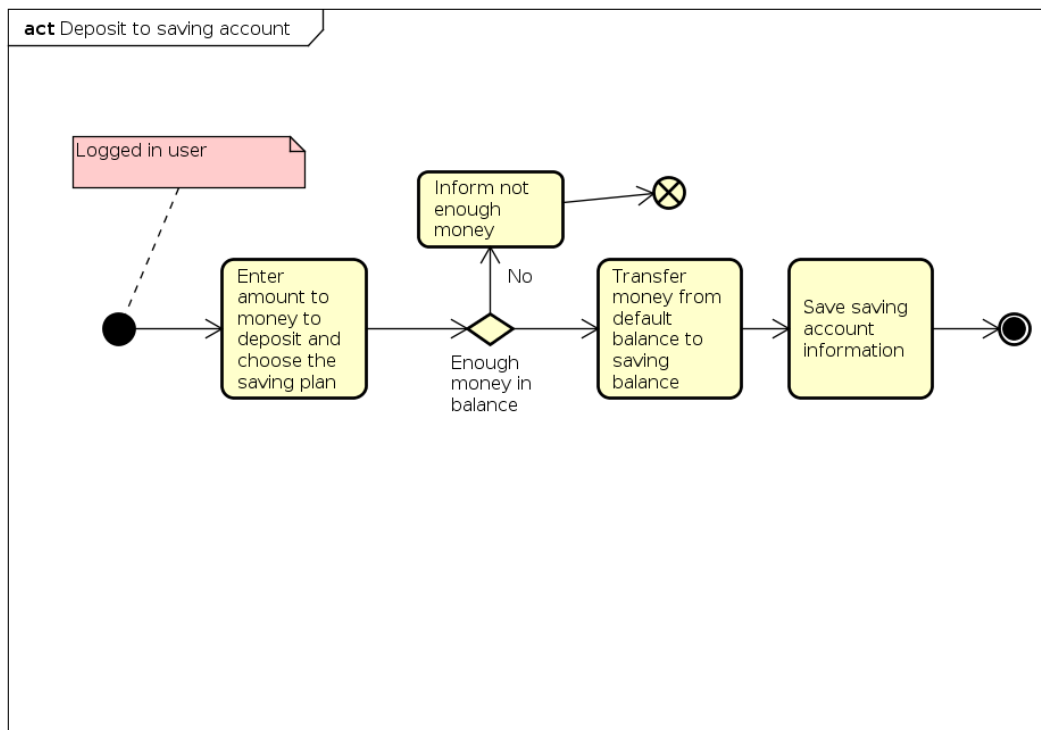
2.4.7 Process of withdraw from saving accounts

act Withdraw from saving account

Logged in user

Inform: Not enough time to withdraw from saving account

[No]

Enough time to withdraw?

[Yes]

Transfer money form saving account to default account
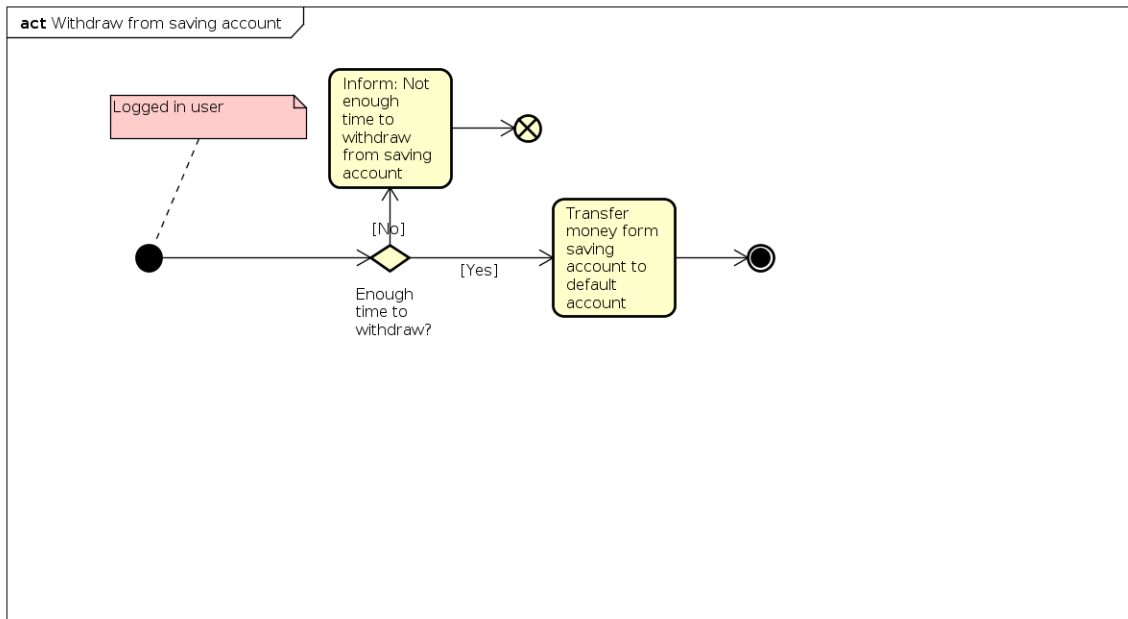
2.4.8 Process of electric receipt payment

act Electric Receipt Payment

Logged in user

User enter receipt number

Connect with EVN to get receipt payment info

Is a valid recipt?   Yes

No

Check user balance

Enough money to pay   Yes

No

Inform not enough money in account

Transfer money from user account to EVN account

Inform EVN software about the transaction
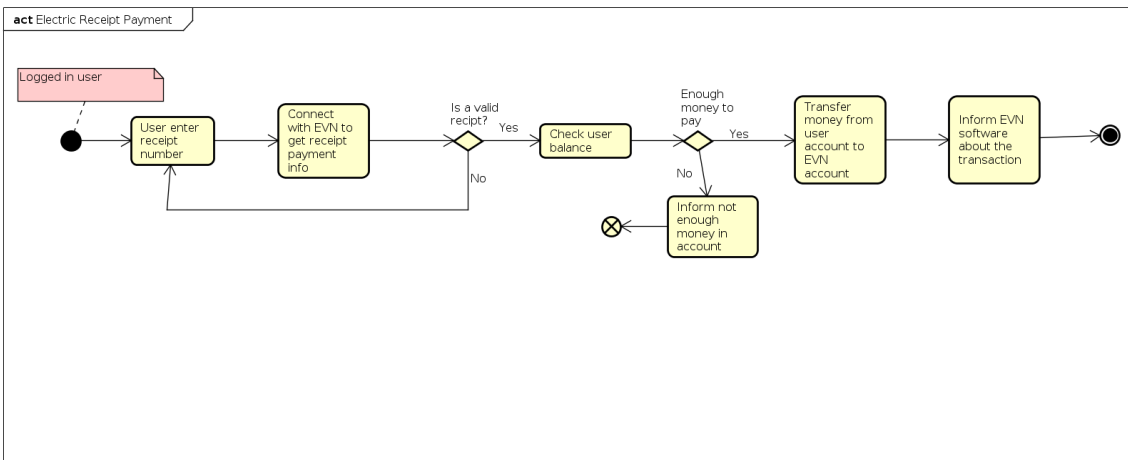
2.4.9 Process of Transaction history inquires
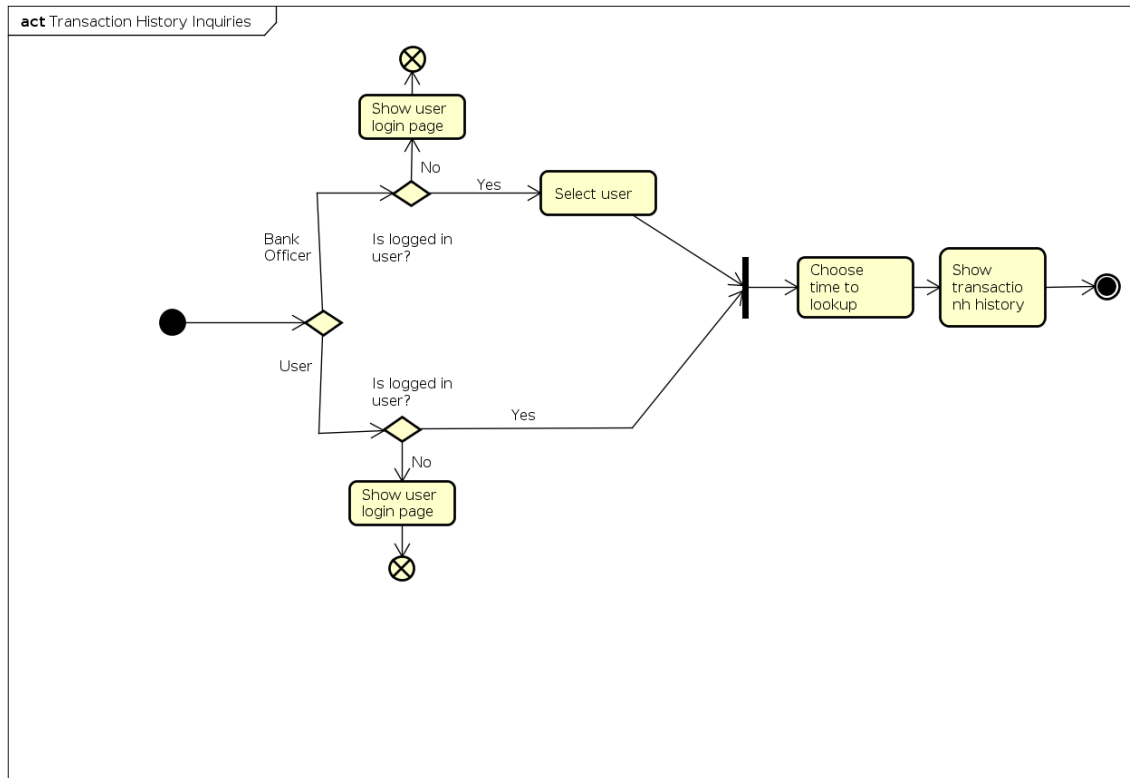
2.4.10 Process of Transfer money
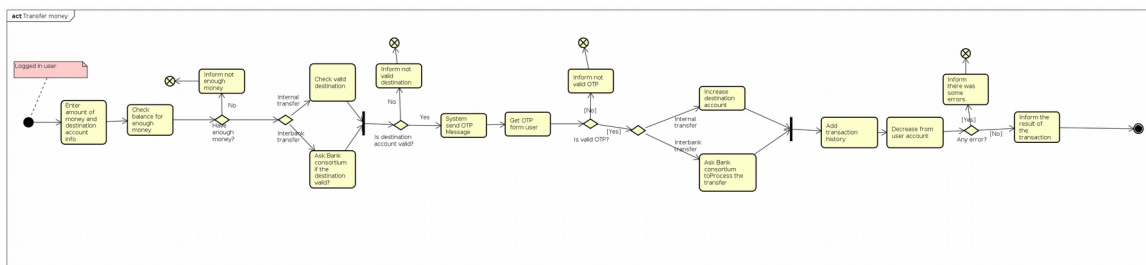
2.4.11 Process of create new customer account
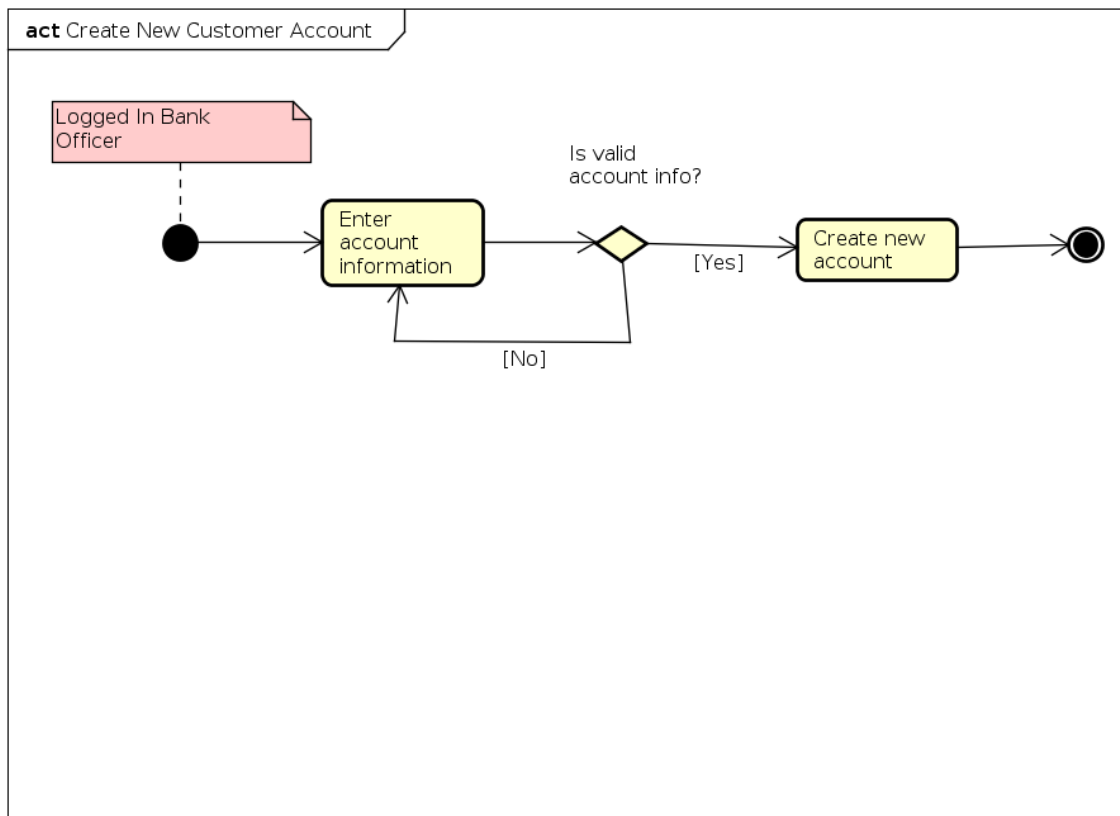
3 Specific Requirements

Details of the use cases given in following sections are specified below.

3.1 Specification of Use case UC001 - "Log in"

Use case code	UC001		
Use case name	Log in		
Actor	User (Customer, Bank Officer)		
Pre-condition	None		
Main flow of events (Success)	No	Actor	Action
	1.	User	Select Log in function
	2.	System	Display log in interface
	3.	User	Input user name and passwords
	4.	User	Request log in
	5.	System	Check whether user had input the required field
	6.	System	Validate the user name and password
	7.	System	Log user into the system
	8.	System	Display the Main Form and the use case end
Alternative flow of events	No	Actor	Action
	6a.	System	Output Error: need to put into the missing required field if had not done so
	7a.	System	Output error: If the user name and password is invalid, require user enter user name and password again
Post-condition	None		

3.2 Specification of Use case UC001 - "Change password"

Use case code	UC002		
Use case name	Change password		
Actor	User (Customer, Bank Officer)		
Pre-condition	User logged in system		
Main flow of events (Success)	No	Actor	Action
	1.	User	Select change password function
	2.	System	Display change password interface, require confirm old password and new password
	3.	User	Enter old password and new password
	4.	System	Check whether user had input the required field
	5.	System	Check the new password is secure enough or not
	6.	System	Check the old password is right or not
	7.	System	Display change password successfully, save new password
Alternative flow of events	No	Actor	Action
	5a.	System	Output error: need to put into the missing required field if had not done so
	6a.	System	Output error: the new password is not secure enough, back to step confirm password

	7a.	System	Output error: the old password is not right, back to step confirm password
Post-condition	None		

3.3 Specification of Use case UC003 - "View Personal Information"

Use case code	UC003		
Use case name	View Personal Information		
Actor	User (Customer, Bank Officer)		
Pre-condition	None		
Main flow of events (Success)	No	Actor	Action
	1.	User	Request personal information
	2.	System	Check if the user/bank officer has logged in
	3.	System	Display the personal information
Alternative flow of events	No	Actor	Action
	2a.	System	Output error and redirect to login page if user / bank officer hasn't logged in
Post-condition	None		

3.4 Specification of Use case UC004- "Pay electric receipt"

Use case code	UC004
Use case name	Pay electric receipt
Actor	Customer, EVN software

Pre-condition	Customer logged in system		
Main flow of events (Success)	No	Actor	Action
	1.	Customer	Request electric receipt payment and enter the receipt id
	2.	System	Connect with EVN to get receipt payment info
	3.	EVN Software	Return payment info with the provided receipt id or an error message
	4.	System	Check the customer balance if there is enough money to pay for the receipt
	5.	System	Transfer money to EVN account then inform the EVN software
	6.	EVN Software	Confirm the payment
	7.	System	Inform customer that payment was successful
Alternative flow of events	No	Actor	Action
	2a.	System	Output error if customer do not enter the receipt id
	4a.	System	Output error if receipt id is not valid
	5a.	System	Output error if there is not enough money in the Customer account
	7a.	System	Output error if there is an error on the transaction
Post-condition	None		

3.5 Specification of Use case UC005 - "Transfer to external account"

Use case code	UC005		
Use case name	Transter to external account		
Actor	Customer, Bank consortium		
Pre-condition	Customer logged in the system		
Main flow of events (Success)	No	Actor	Action
	1.	Customer	Select transfer to external account function
	2.	System	Display form to enter destination bank and destination account
	3.	Customer	Enter the destination bank and destination account
	4.	System	Software ask the Bank consortium to display information of the destination account
	5.	Bank consortium	Return information of the destination account to system
	6.	System	Software display information of the destination account
	7.	System	System ask to enter the amount of money to transfer
	8.	Customer	Enter the amount of money
	9.	System	Check the customer balance if the funds are insufficient
	10.	System	Send OTP (One-Time Password) to customer
	11.	Customer	Enter the OTP number
	12.	System	System check if OTP number that Customer enter is valid or not
	13.	System	System ask Bank consortium to process

		the transfer to the destination account
14.	System	System add a new transaction history
15.	System	System decrease the transfer amount of the customer account
16.	System	Notify successfully transfer

<table>
<tr><td rowspan="5">Alternative flow of events</td><td colspan="3"></td></tr>
<tr><td>No</td><td>Actor</td><td>Action</td></tr>
<tr><td>6a.</td><td>System</td><td>Output error: destination account is not exist, back to step enter destination bank and destination account</td></tr>
<tr><td>10a.</td><td>System</td><td>Output error: Notify insufficient funds, back to step enter amount of money to transfer</td></tr>
<tr><td>13a.</td><td>System</td><td>Output error: Notify OTP is not correct, back to main menu</td></tr>
<tr><td>Post-condition</td><td colspan="3">The system should be ready to perform another transaction or should be in a disabled state awaiting service.</td></tr>
</table>

3.6 Specification of Use case UC006 - "Transfer to internal account"

<table>
<tr><td>Use case code</td><td colspan="3">UC006</td></tr>
<tr><td>Use case name</td><td colspan="3">Transter to internal account</td></tr>
<tr><td>Actor</td><td colspan="3">Customer</td></tr>
<tr><td>Pre-condition</td><td colspan="3">Customer logged in the system</td></tr>
<tr><td rowspan="4">Main flow of events (Success)</td><td>No</td><td>Actor</td><td>Action</td></tr>
<tr><td>1.</td><td>Customer</td><td>Select transfer to internal account function</td></tr>
<tr><td>2.</td><td>System</td><td>Display form to enter destination</td></tr>
</table>

			account
	3.	Customer	Enter the destination account
	4.	System	System ask to enter the amount of money to transfer
	5.	Customer	Enter the amount of money
	6.	System	Check the customer balance if the funds are insufficient
	7.	System	Send OTP (One-Time Password) to customer
	8.	Customer	Enter the OTP number
	9.	System	System check if OTP number that Customer enter is valid or not
	10.	System	Transfer to the destination account
	11.	System	System add a new transaction history
	12.	System	System decrease the transfer amount of the customer account
	13.	System	Notify successfully transfer
Alternative flow of events	No	Actor	Action
	6a.	System	Output error: destination account is not exist, back to step enter destination account
	7a.	System	Output error: Notify insufficient funds, back to step enter amount of money to transfer
	10a.	System	Output error: Notify OTP is not correct, back to main menu
Post-condition	The system should be ready to perform another transaction or should be in a disabled state awaiting service.		

4 Supplementary specification

<Presenting other requirements if necessary, including non-functional requirements such as performance, reliability, usability, and supportability; or other technical requirements such as database system, used technology…>

4.1 Functionality

<Functional requirements that are general to many use cases>

4.2 Usability

<Requirements that relate to, or affect, the usability of the system. Examples include ease-of-use requirements or training requirements that specify how readily the system can be used by its actors>

4.3 Reliability

<Any requirements concerning the reliability of the system. Quantitative measures such as mean time between failure or defects per thousand lines of code should be stated>

4.4 Performance

<The performance characteristics of the system. Include specific response times. Reference related use cases by name>

4.5 Supportability

<Any requirements that will enhance the supportability or maintainability of the system being built>

4.6 Other requirements

<Descriptions of other requirements are located here>