Design Document

For AB-SERVICE DIRECTORY

Prepared for

Fresher05

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Prepared by

Pham Trung Hai

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Reviewers

Name	Version	Position	Date
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Table of Contents

1 Introduction 31
1.1 Purpose 31
1.2 Scope 31
1.3 Intended Audiences and Document Organization 31
1.4 Acronyms and Abbreviations 31
1.5 References 32
2 Architecture design 32
2.1 Application Logical Architecture 32
2.1 User case view 32
2.1.1 Overview 32
2.1.2 Description 33
2.2 Architectural Representation 33
2.2.1 Presentation Layer 34
2.2.2 Business Layer 34
2.2.3 Data Access Layer 35
2.3 Packages/Components view 35
2.2.4 UI Components 35
2.2.5 Business Entities 36
2.2.6 Data Access Object 36
2.2.7 Exceptions Lib 36
2.2.8 General Lib 36
2.2.9 Logging Lib 36
3 Technical Solutions 37
3.1 Exception handling mechanism 37
3.2 Loging mechanis 37
4 Database design HuyVQ4 37
4.1 Entity Relationship Diagram 37
4.2 Schema 37
4.3 Detail Schema 38
4.3.1 Customer 38
4.3.2 Account 38
4.3.3 Card 38
4.3.4 OverDraft Limit 38
4.3.5 WithDraw Limit 38
4.3.6 ATM 39
4.3.7 Money 39
4.3.8 Stock 39
4.3.9 LogType 39
4.3.10 Log 39
4.3.11 Config 40
5 Application Security 40
5.1 . Main functions ‘s security matrix 40
6 Interface Design 41
6.1 Layout 41
6.2 Themes 41
7 Details function design 41
7.1 Use case 01: Validation – HuyVQ4 41
7.1.1 Validate Card 41
7.1.2 Authentication 46
7.2 Use case 02: Withdraw Money - LuyenNV 51
7.2.1 Withdraw 51
7.2.2 Dispense Cash ..... **Error! Bookmark not defined.**
7.3 Use case 03: Check Balance – LuyenNV 57

7.4 Use case 04: View History – HuyVQ4 61
7.4.1 View History 61
7.5 Use case 05: Cash Transfer – DucNA9 66
7.6 Use case 06: Change PIN – DucNA9 79
7.7 Use case 07: Logging – HuyVQ4 84
7.7.1 Logging 84
8 Configuration 86
8.1 Application Configuration 86
8.2 System Configuration 87
9 Packaging and Deployment 87
10 Appendix 87
10.1 Micrsoft Enterprise library 87

1 Introduction

1.1 Purpose

This document provides a technical approach for implementing ATM application, using a number of different architectural diagráms to view different aspects of the system. It also presents the decisions that will govern how the application will be built from .NET framework with C# programming perspective.

This document's aim is to describe the architecture at high level, in which the system will be described as a set of functional layers, with technologies suggested for each layers.

1.2 Scope

This document is prepared for the ATM simulator application in scope of the Assignemtn of FRESHER11.

1.3 Intended Audiences and Document Organization

This document is intended for:

- Development team: Developers
- Customer Representatives: Responsible to review & approve the document.

Below are main sections of the document:

- **Introduction** : This section describes the general introduction of this document
- **Architecture Design :** This section describes the high-level technical assessments and decisions for the application.
- **Data Design**: This section describes in detail how data is structured and manipulated in this application.
- **Interface Design:** This section describes in detail how UI is designed in general (layout , theme).
- **Application Security**: This section describles security matrix in detail
- **Configuration:** This section describes all configuration needed for the application to function properly.
- **Packaging and Deployment:** This section describles how applications could be packaged and deployed.

1.4 Acronyms and Abbreviations

#	Item	Description
1	ATM	Automated Teller Machine
2	PL	Presentation Layer
3	BLL	Business Logic Layer
4	DAL	Data Access Layer
5	DAO	Data Access Object, this object is responsible for attaching to a system, extracting some information, based on specific requirements, and creating a value object.
6	VO	Value Object
7	BE	Business Entities

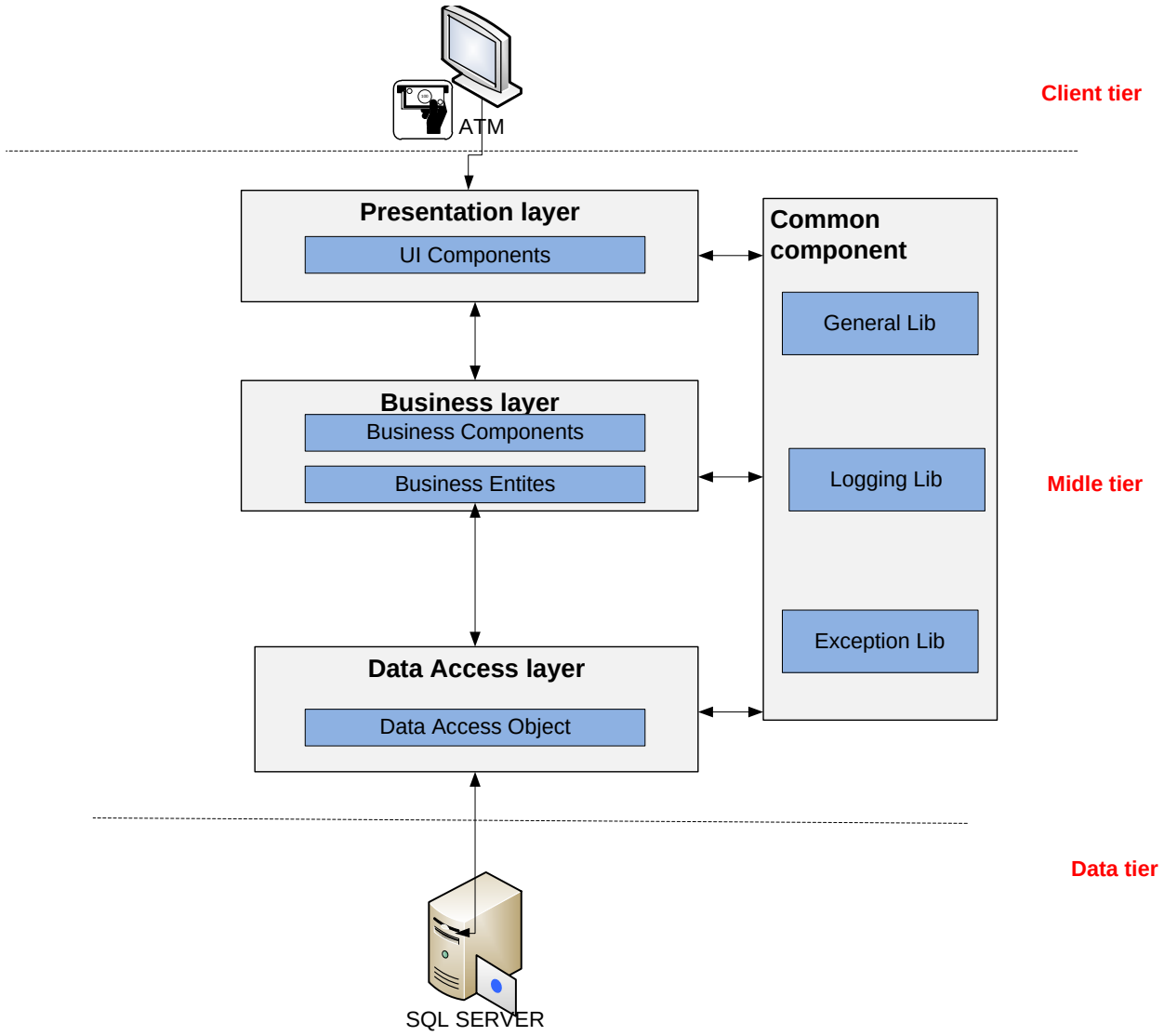
1.5 References

#	Title	Version	File Name / Link	Description
1	.NET Project_Software Design Document	1.0	**.NET Project_Software Design Document.docx**	
2				

Table 1.1: List of References

2 Architecture design

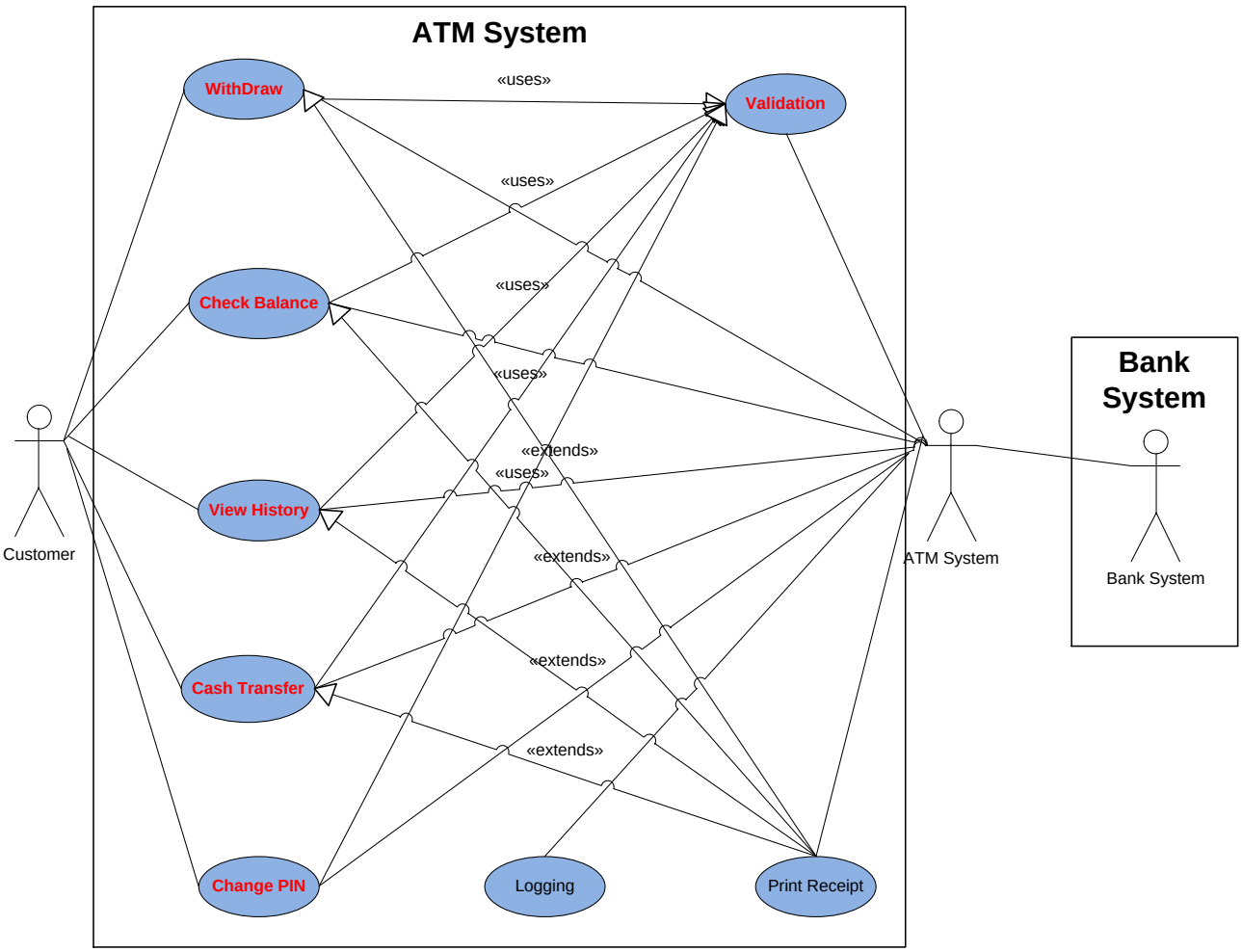
2.1 Application Logical Architecture



2.1 User case view

2.1.1 Overview

The following use cases are required to be to be included in the ATM simulator application



2.1.2 Description

UC	Name	Description
UC01	Validation	Validate customer card and PIN customer enterred
UC02	Withdraw	Allow customer to withdraw money
UC03	Check balance	Allow customer to check their account balance
UC04	View history	Allow customer to view their succesful transaction
UC05	Cash Transfer	Allow customer to transfer their cash to another account in accepted bank system
UC06	Change PIN	Allow customer to change their PIN
UC07	Logging	System write log

2.2 Architectural Representation

The following diagram shows the primary tiers in the proposed n-tier architecture. This diagram shows the main layers in this architecture and the vision of how they fit together.

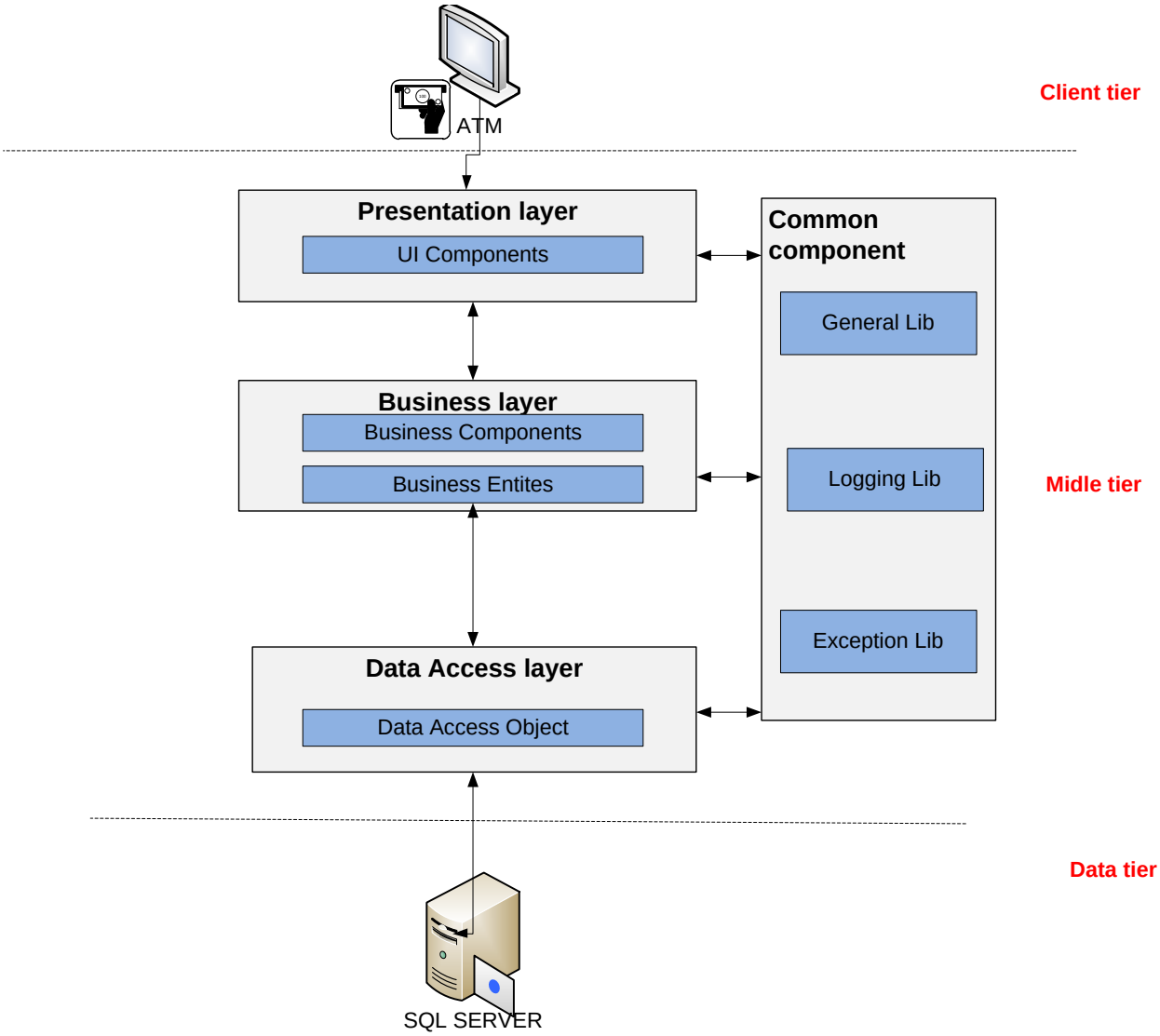


Figure 1 – N-tier architecture of ATM simulator system

2.2.1 Presentation Layer

This layer controls the display to the end user. The development framework is based on .NET Model architecture. The framework is responsible for:

- Managing requests/responses from/to the clients.
- Controlling display to the end user.
- Performing UI validation.
- Handling exceptions from other layers.

2.2.2 Business Layer

This layer manages the business processing rules and logic.

- Handling application business logic and business validation.
- Managing transactions.
- Allowing interfaces for interaction with other layers.
- Managing dependencies between business level objects.
- Adding flexibility between the presentation and the persistence layer so they do not directly communicate with each other.

- Exposing a context to the business layer from the presentation layer to obtain business services.
- Managing implementations from the business logic to the persistence layer.

2.2.3 Data Access Layer

This layer manages access to persistent storage. The primary reason to separate data access from the rest of the application is that it is easier to switch data sources and share Data Access Objects (DAOs) between applications.
This layer manages reading, writing, updating, and deleting stored data.

2.3 Packages/Components view

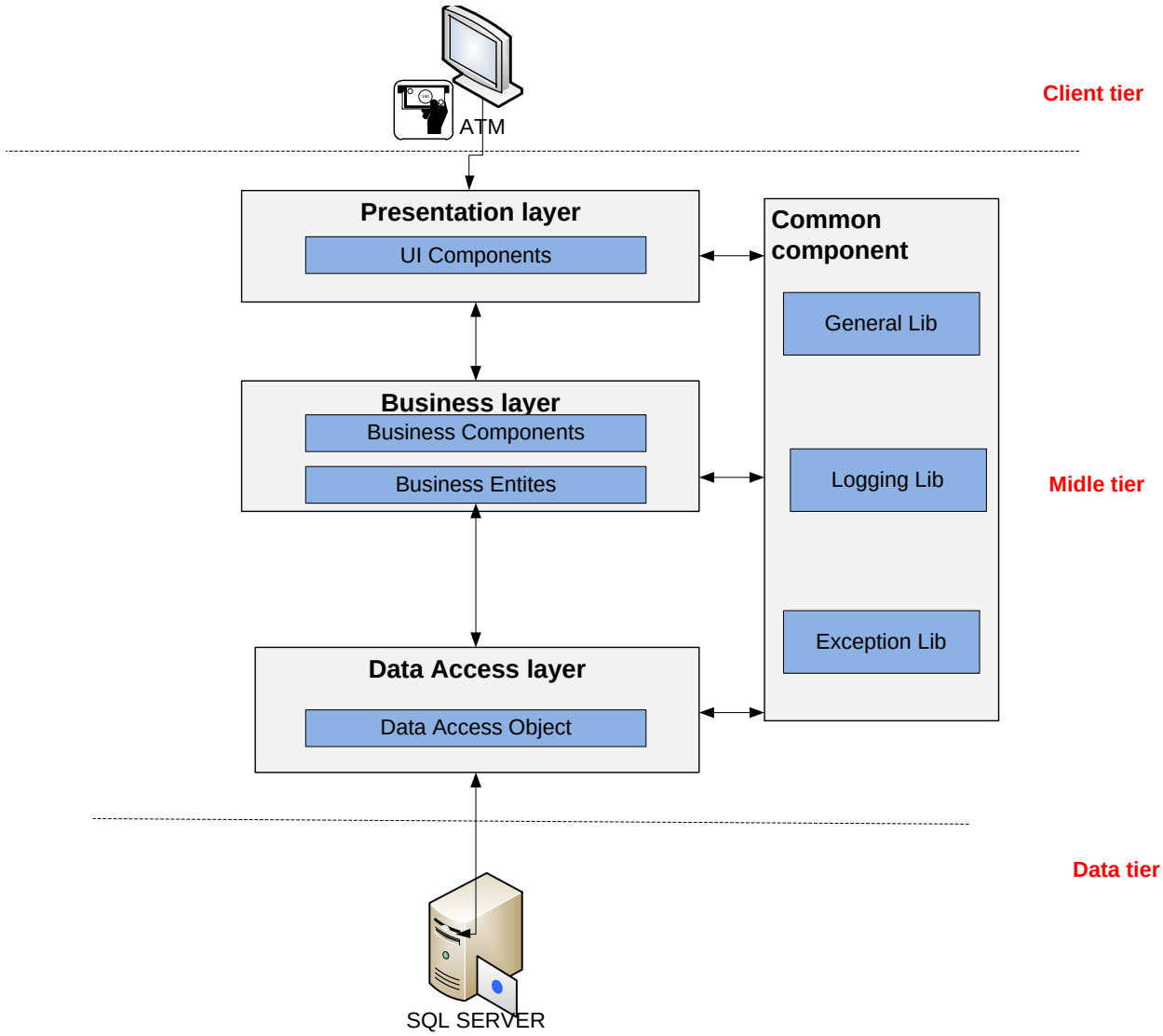


Figure 2 – Packages/Component view of ATM simulator system

2.2.4 UI Components

This package includes the implementation for the .NET architecture proposed to be used in the Presentation Layer to handle the display to the end user.
Validation: All validation of incoming requests parameters to the server should be validated using .NET client side control .

2.2.5 Business Entities

This package includes the implementation of business objects. **Business Entities** (BE) layer is used to perform the business operations. The Business Entities layer will access the DAO to access database. Transactions should be managed within this business layer.

2.2.6 Data Access Object

This package includes the implementation of Data Access Object. Using Linq to SQL classes here to make the application more flexible to access database. Linq to SQL classes includes basic functions to work with database: *select, insert, update, delete*.

2.2.7 Exceptions Lib

This package will include all general exceptions that will typically used by more than one package. The try-catch clauses should be kept to a minimum.

2.2.8 General Lib

This package includes all utilities .NET classes will be wisely used in the modules.

2.2.9 Logging Lib

This package includes implemented logging classes.

3 Technical Solutions

3.1 Exception handling mechanism

The try-catch clauses should be kept to a minimum.
Whenever an exception raise , system will log exception detail to Windows event and redirect user to Error page to display standard error message!

3.2 Loging mechanis

4 Database design HuyVQ4

4.1 Entity Relationship Diagram

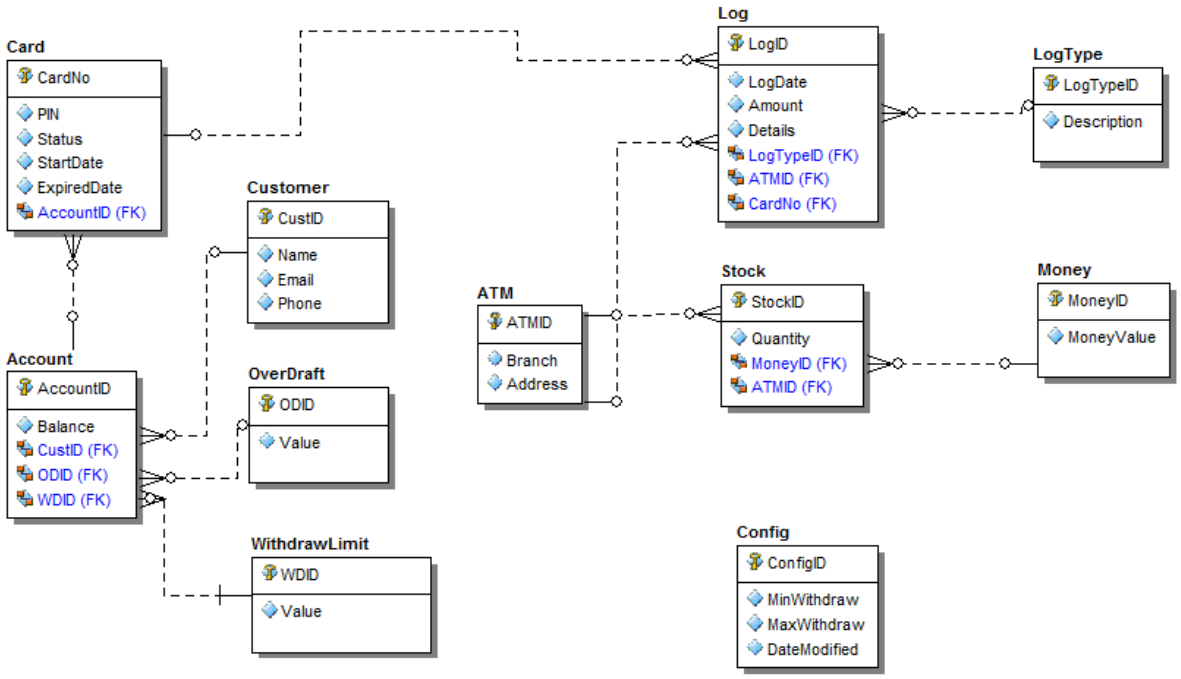


Figure 3 – Data overview

4.2 Schema

Overview

STT	Name	Description
1	Customer	List all Customer
2	Account	List all account use in system
3	Card	List all ATM card use in system
4	OverDraft	Amount of money that an account can over draft
5	WithdrawLimit	Limit of amount that an account can withdraw for a day
6	ATM	List all ATM use in system
7	Money	Kind of money and value
8	Stock	Kind of money and quantity of each kind stored in each ATM
9	Log	Log any transaction of customer
10	LogType	Kind of Log: Withdraw, transfer, check balance, change pin
11	Config	Store all system config: minwithdraw, maxwithdraw, number

		records per seach results.

4.3 Detail Schema

4.3.1 Customer

Customer				
	Field name	**Type**	**Max Length**	**Description**
1	CustID	int		Store ID of Customer
2	Name	nvarchar	100	Store name of Customer
3	Phone	Varchar	50	Store phone number of Customer
4	Email	Varchar	100	Store email address of Customer
5	Addr	Nvarchar	200	Address of Customer

4.3.2 Account

Account				
	Field name	**Type**	**Max Length**	**Description**
1	AccountID	int		Store ID of Account
2	CustID	Int		Store ID of Customer
3	AccountNo	Varchar	50	Store Account Number
4	ODID	Int		Store ID of OverDraft Limit
5	WDID	Int		Store ID of WithDraw Limit
6	Balance	Decimal		Store amount of money left in account

4.3.3 Card

Card				
	Field name	**Type**	**Max Length**	**Description**
1	CardNo	Varchar	16	Store Card number
2	Status	Varchar	30	Store status of card: block, normal …
3	AccountID	Int		Store Account ID
4	PIN	Varchar	6	Store the PIN code of Card
5	StartDate	Datetime		Date of created
6	ExpiredDate	Datetime		Date of expire.
7	Attempt	Int		Entered invalid PIN times of customer

4.3.4 OverDraft Limit

OverDraft				
	Field name	**Type**	**Max Length**	**Description**
1	ODID	Int		ID of overdraft limit
2	Value	Decimal		Value of overdraft limit that an account can overdraft

4.3.5 WithDraw Limit

OverDraft				
	Field name	**Type**	**Max Length**	**Description**
1	WDID	Int		ID of withdraw limit

2	Value	Decimal		Value of withdraw limit that an account can withdraw for a day.

4.3.6 ATM

ATM				
	Field name	**Type**	**Max Length**	**Description**
1	ATMID	Int		ID of ATM
2	Branch	Nvarchar	50	Branch name
3	Address	Nvarchar	100	Location of ATM

4.3.7 Money

Money				
	Field name	**Type**	**Max Length**	**Description**
1	MoneyID	Int		ID of money use in system
2	MoneyValue	Decimal		Value of kind of money
3	Address	Nvarchar	100	Location of ATM

4.3.8 Stock

Stock				
	Field name	**Type**	**Max Length**	**Description**
1	StockID	Int		ID of stock record
2	MoneyID	Int		Store ID of kind of money
3	ATMID	Int		Store ID of ATM
4	Quantity	Int		Store quantity of each kind of money in each ATM

4.3.9 LogType

LogType				
	Field name	**Type**	**Max Length**	**Description**
1	LogTypeID	Int		ID of log type use in system
2	Description	Nvarchar	100	Name or details of log type

4.3.10 Log

Log				
	Field name	**Type**	**Max Length**	**Description**
1	LogID	Int		ID of log record
2	LogTypeID	Int		ID of log type
3	ATMID	Int		ID of ATM
4	CardNo	Varchar	16	Number of ATM Card
5	LogDate	Datetime		Date when transaction happen.
6	Amount	Decimal		Amount of transaction
7	Details	Varchar	100	Description about transaction

4.3.11 Config

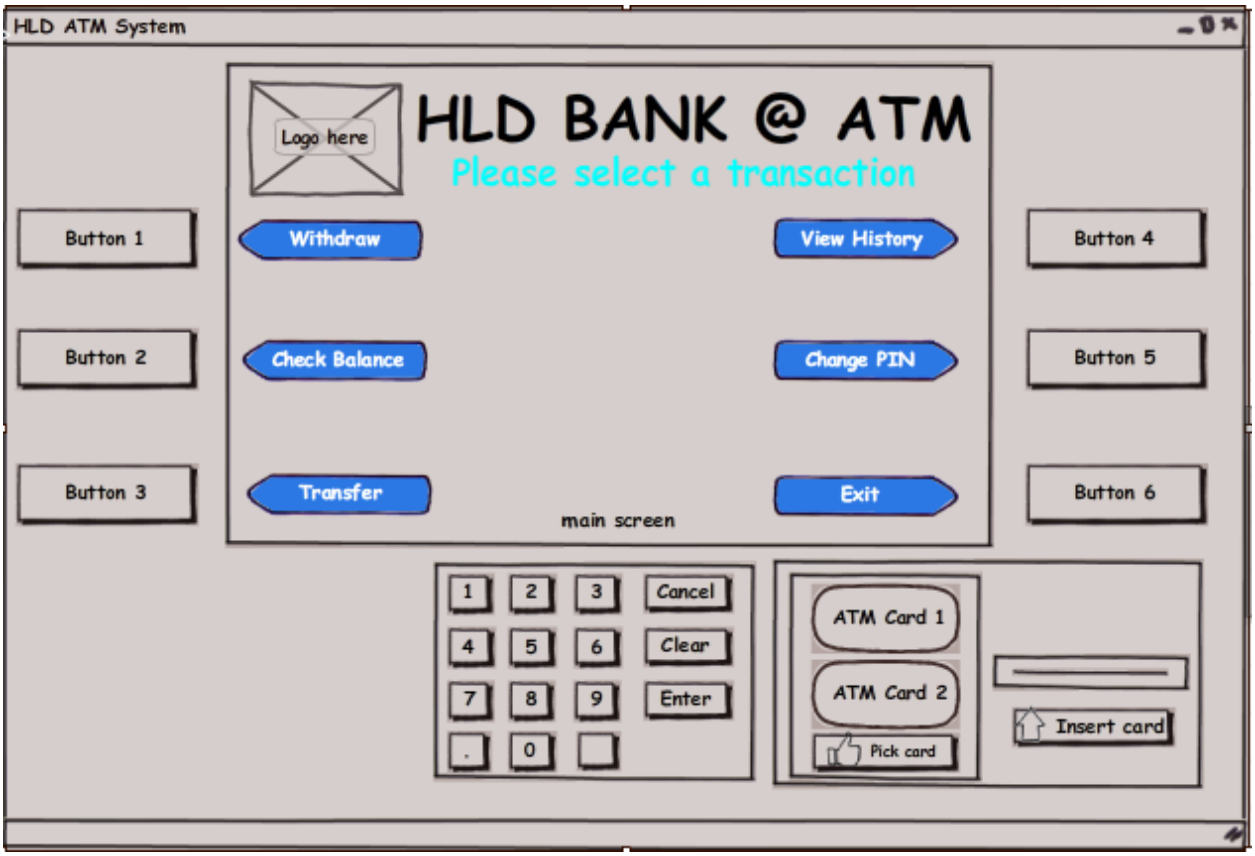
Config				
	Field name	Type	Max Length	Descrition
1	DateModified	Datetime		Date of modified
2	MinWithDraw	Decimal		Limit minimun of each withdrawal
3	MaxWithDraw	Decimal		Limit maximum of withdrawal for a day
4	NumPerPage	Int		Number of record will display per page in search results screen

5 Application Security

5.1 . Main functions ‘s security matrix

Actor / Usercase		Customer	ATM
Validation			x
Withdraw		x	x
CashTransfer		x	x
CheckBalance		x	x
ChangePIN		x	x
ViewHistory		x	x
Logging			x

6 Interface Design HuyVQ4



6.1 Layout – HuyVQ4

- A Main screen is aligmented top center: use to display all the screen transaction to the customer
  - Bank logo on the top left of main screen
  - Bank Name on the top center of main screen
- There are six (6) fixed button (Button1 -> 6): 3 on the left and 3 on the right: diffirent function with each screen transaction
- Caculator keyboards are under the main screen: button 0 to 9 to input number 0 to 9.
  - Cancel button: used to cancel any transaction.
  - Clear button: used to refresh the input text.
  - Enter button: used to submit the input or confirm customer action.

6.2 Themes

7 Details function design

7.1 Use case 01: Validation – HuyVQ4

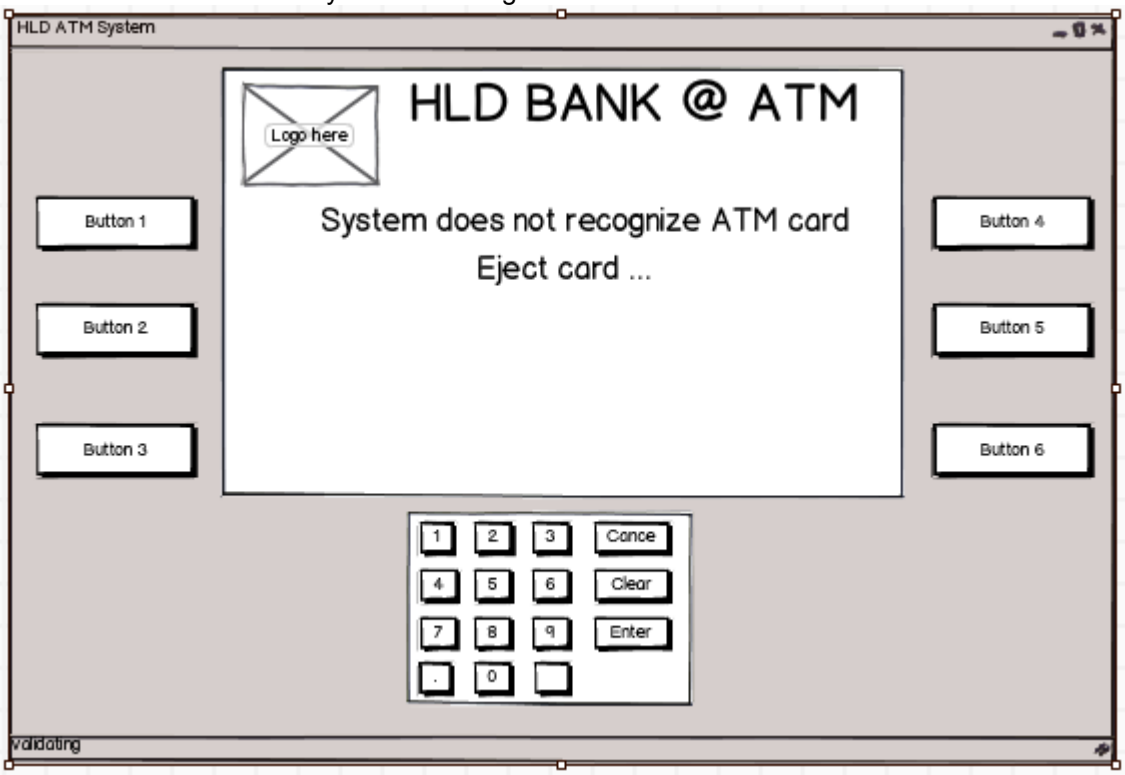
7.1.1 Validate Card

Name	Validate Card
Description	This use case allows ATM system to check the cards which is inputted by user is valid or not.
Actor	ATM System

Trigger	When user clicked on ‘Insert Card’ button at main screen.
Pre-condition	The card has been inputted into ATM machine.
Post-condition	If the card is valid then next step “Authenticaton” is activated, eject the card if it is invalid.

Screen Design & Data Description

SC 01 : Main screen when system validating customer’s card



SC 02 : Screen when system does not recognize customer’s card is a ATM card or customer insert a card this bank system does not support.

Item	Type	Description
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen
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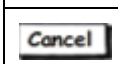
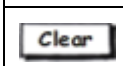
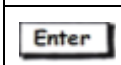
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen
	button	Do nothing at this screen

Activities Flow

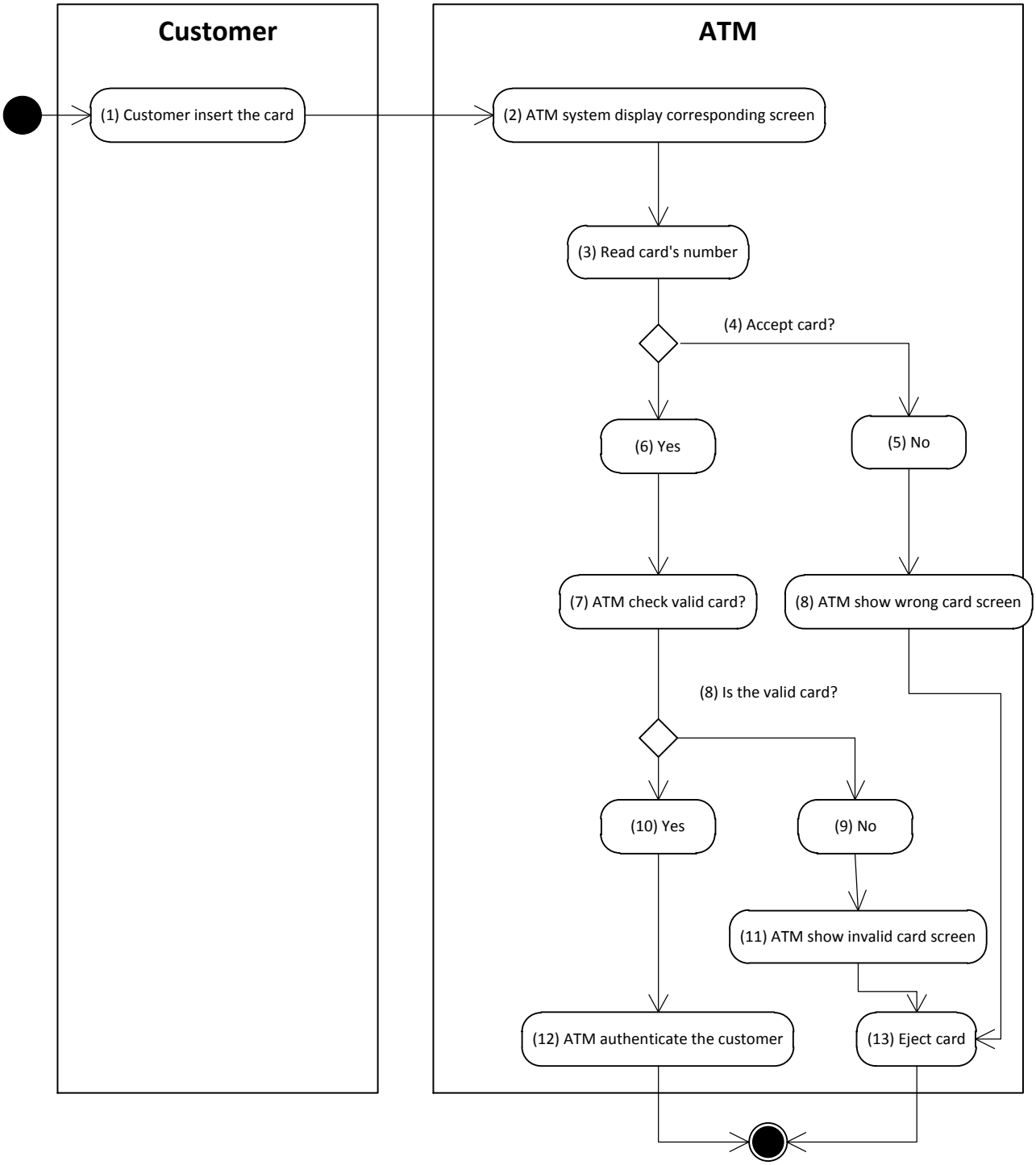
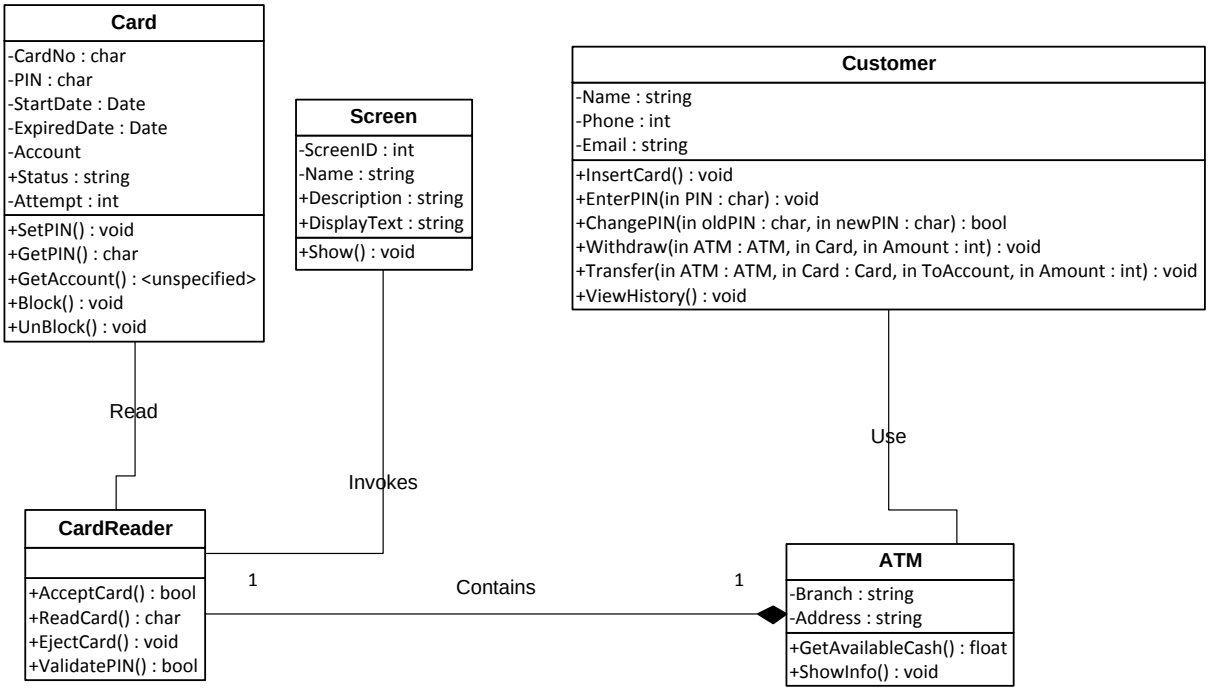


Figure 4.1:Activities Flow

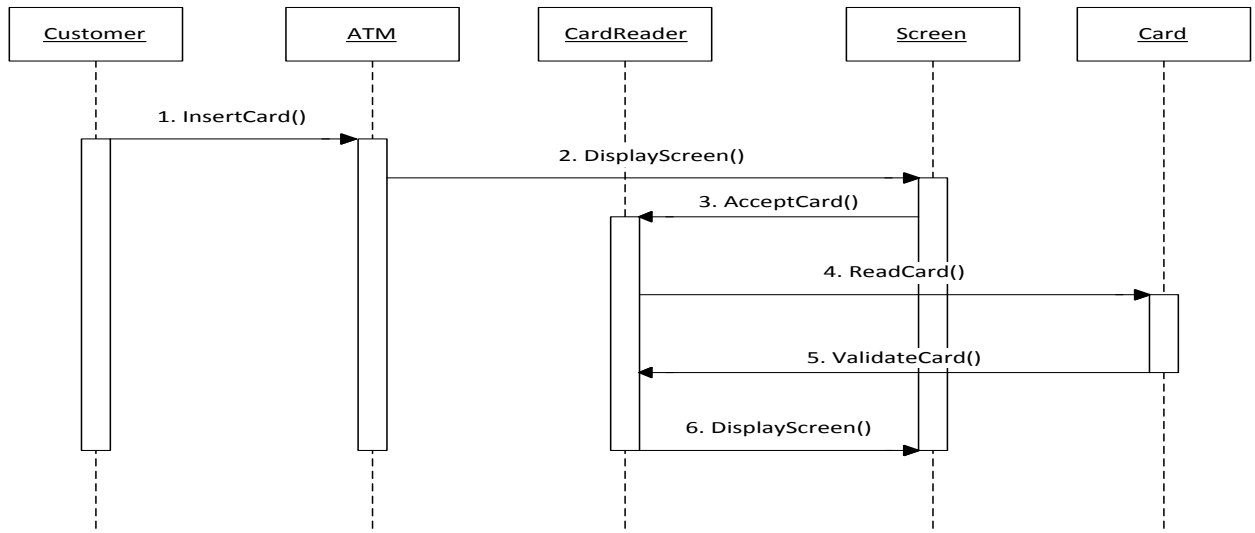
Detail Processing

Activity	BR Code	Description
(3)	BR01	**Checking rules:** ❖ IF <Card Reader> cannot read the card's number THEN ➢ Set <<ShowedScreen>> = [Wrong Card Screen]. ➢ Send request to eject card.
(7)	BR02	**Checking rules:** ❖ When user inserted the right card into ATM ➢ Get card information from database with card number like the number read from the card was inserted by customer. ❖ IF Card number does not match with any card number in database THEN ➢ Set <<ShowedScreen>> = [Invalid Card Screen]. ➢ Send request to eject card.

Class diagram



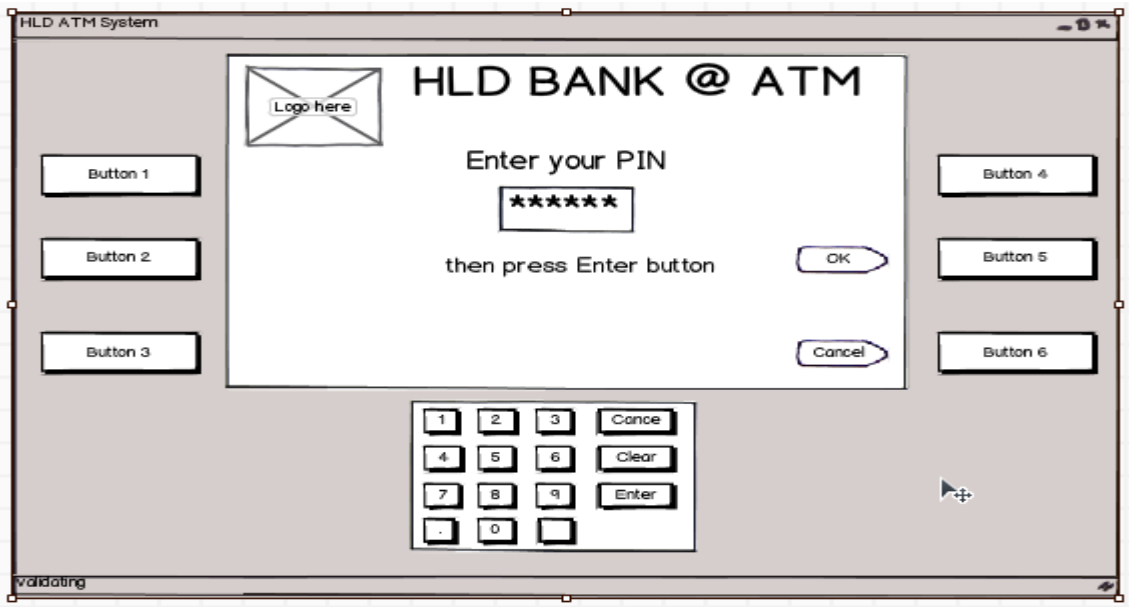
Sequense diagram



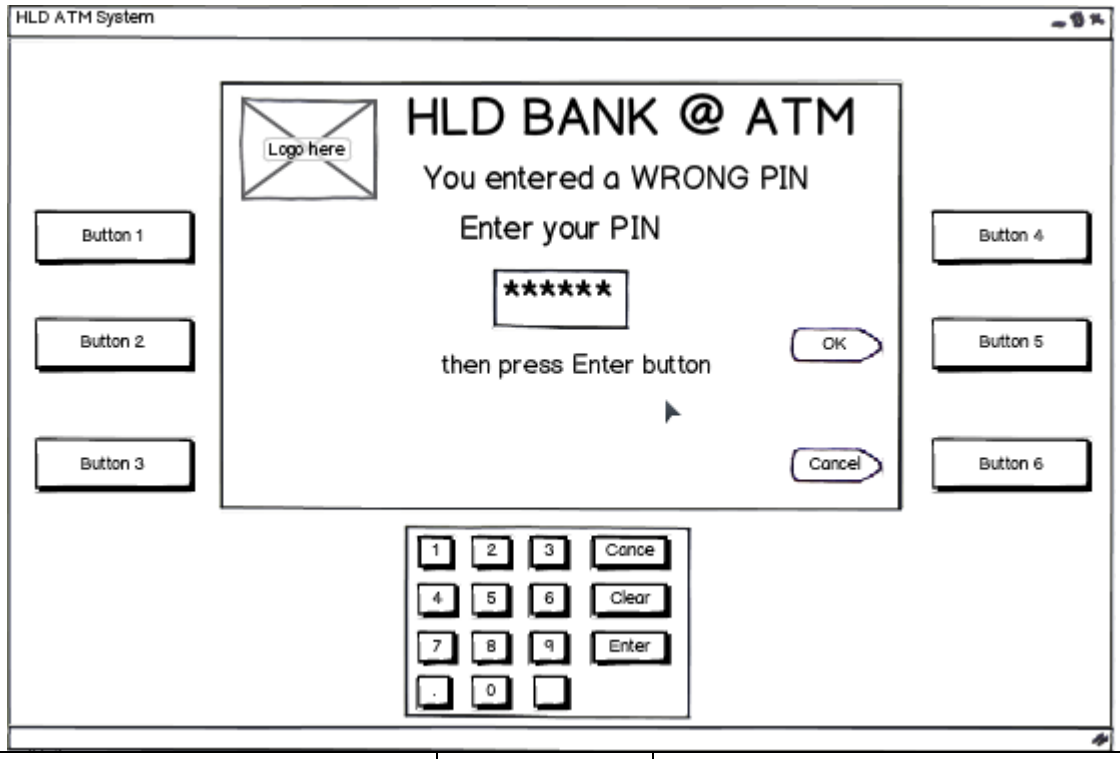
7.1.2 Authentication

Name	Authentication
Description	This use case allows ATM system to check the PIN which is inputted by customer is valid or not.
Actor	ATM System
Trigger	When user clicked on 'Enter' button or 'Submit'button at [Input PIN] screen.
Pre-condition	The card has been inputted into ATM machine.
Post-condition	Customer was authenticated successfully, ATM system display the select transaction screen.

Screen Design & Data Description



SC 01 : Screen when customer enter their PIN



Item	Type	Description
Button 5	button	Submit customer PIN
Button 6	button	Cancel function, return to pre-screen
Cancel	button	Cancel function, return to pre-screen
Clear	button	Clear text at text box
Enter	button	Submit customer PIN
******	Textbox	Input customer PIN
Others button	Button	Do nothing at this screen
1	button	Accept input of customer
2	button	Accept input of customer
3	button	Accept input of customer
4	button	Accept input of customer
5	button	Accept input of customer
6	button	Accept input of customer

Item	Type	Description
7	button	Accept input of customer
8	button	Accept input of customer
9	button	Accept input of customer
0	button	Accept input of customer

SC 02 : Screen when customer enter WRONG PIN, system requires customer to re-enter PIN.

SC 03 : Screen when system validating customer PIN.

Item	Type	Description
All button	Button	Do nothing at this screen

Activities Flow

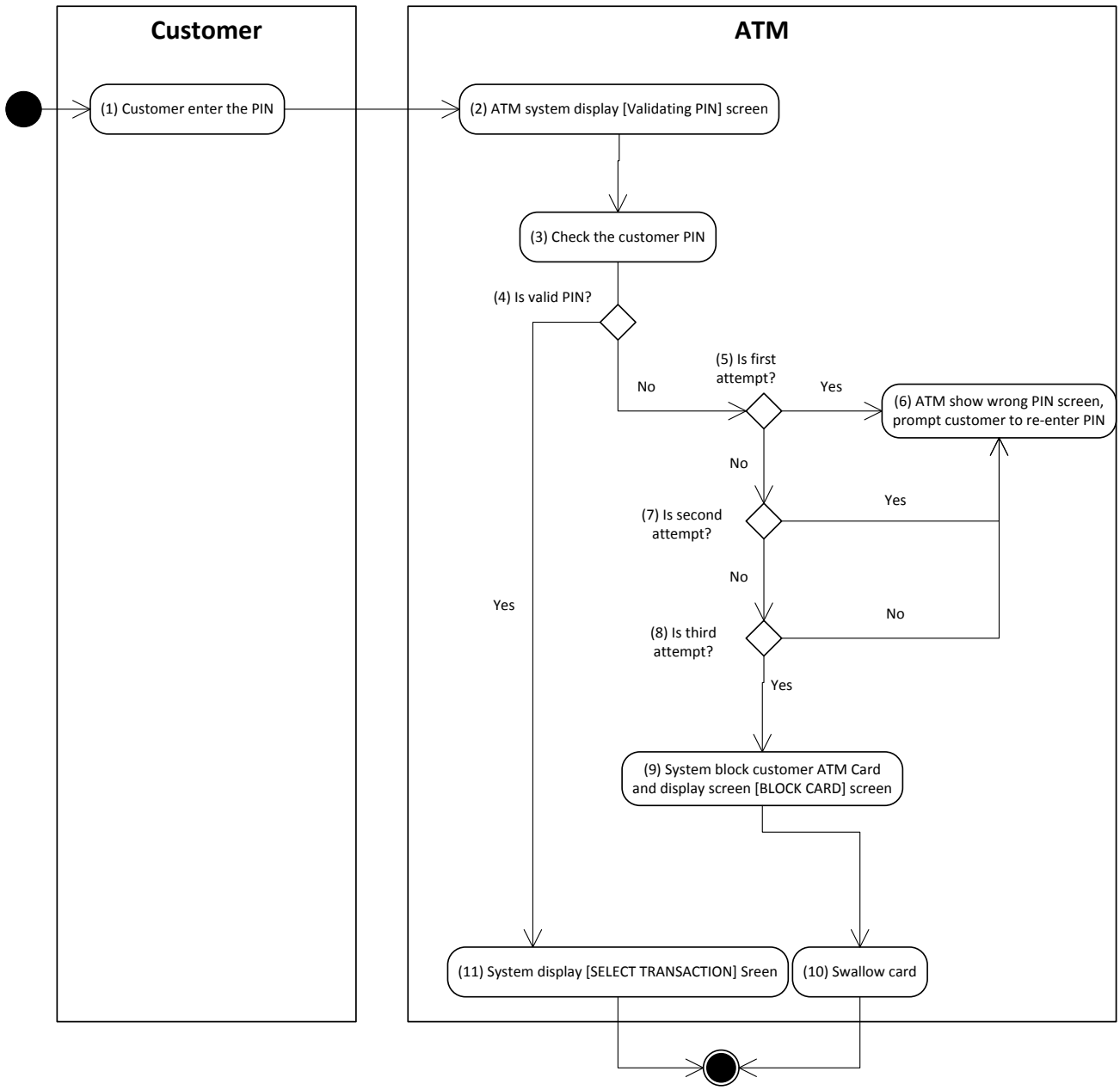


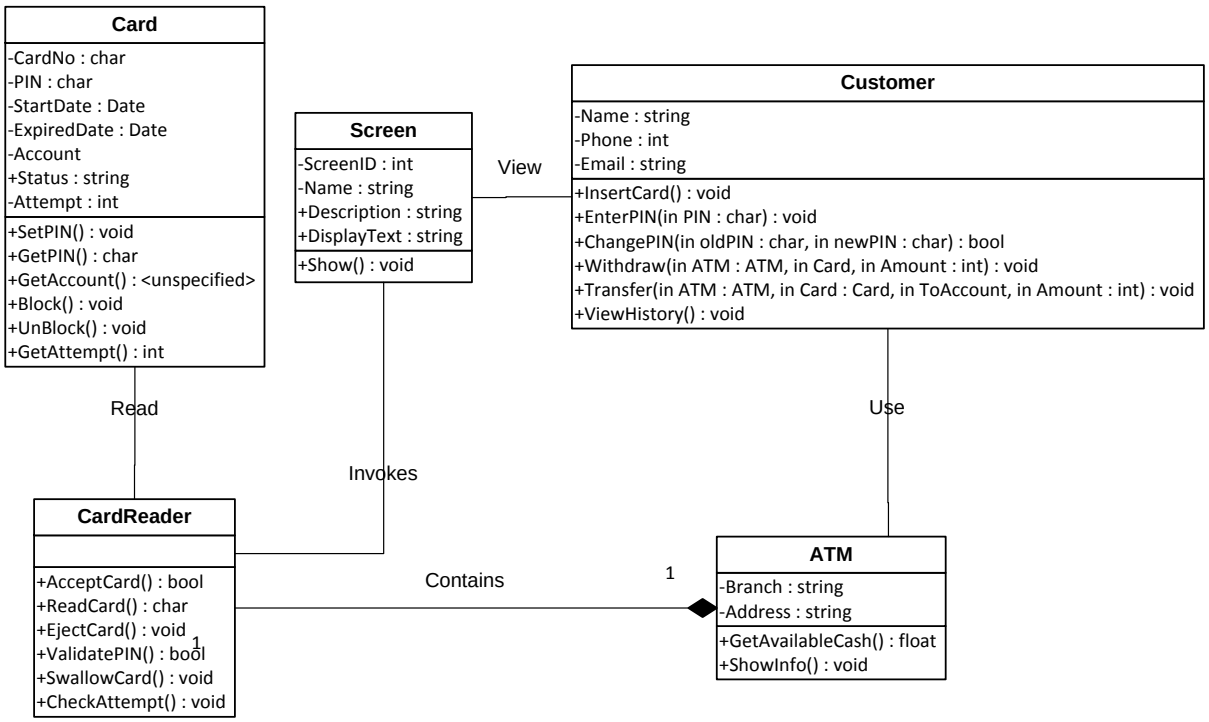
Figure 4.2:Activities flow for authentication

Detail Processing

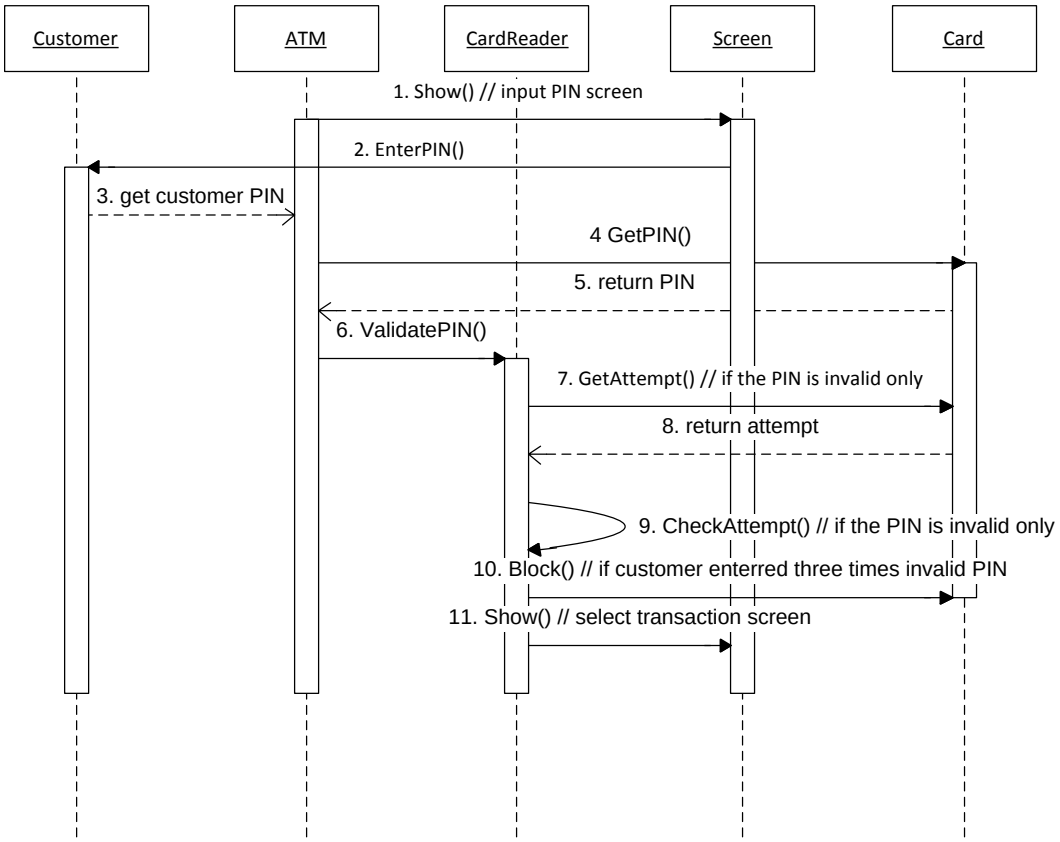
Activity	BR Code	Description
(4)	BR01	**Checking rules:** ❖ Check PIN ➢ Get the PIN of Customer Card from Database. ➢ Compare the PIN get from database with the PIN customer just enterred. ❖ IF the PIN customer inputted does not match with the PIN in database of customer Card THEN ➢ Set <<ShowedScreen>> = [Wrong PIN Screen]. ➢ Prompt customer to re-enter PIN. ❖ IF the customer has inputted three times wrong PIN THEN

		➢ Set <<ShowedScreen>> = [Block Card Screen]. ➢ Set <Status> of Card = “Block”. ➢ Swallow card.

Class diagram



Sequense diagram

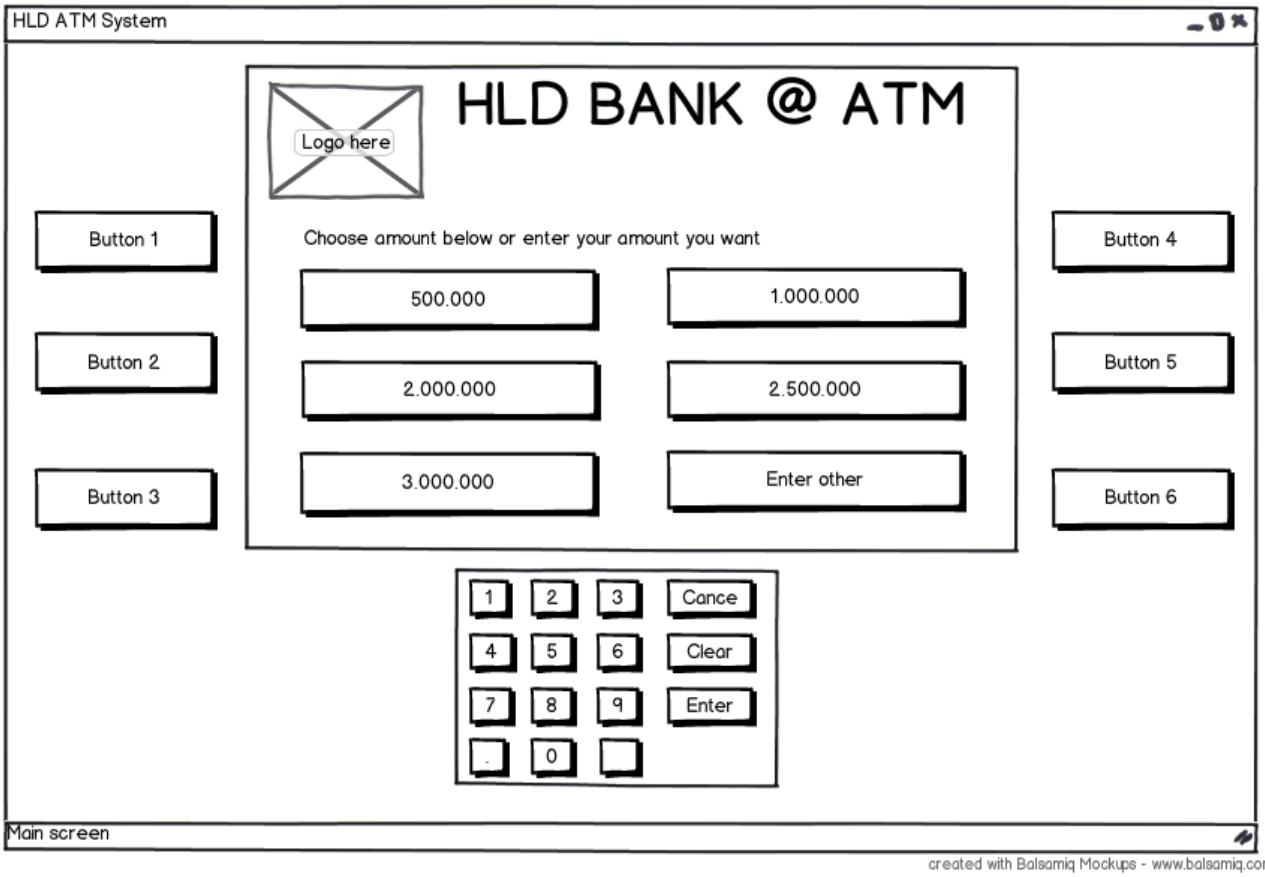


7.2 Use case 02: Withdraw Money - LuyenNV

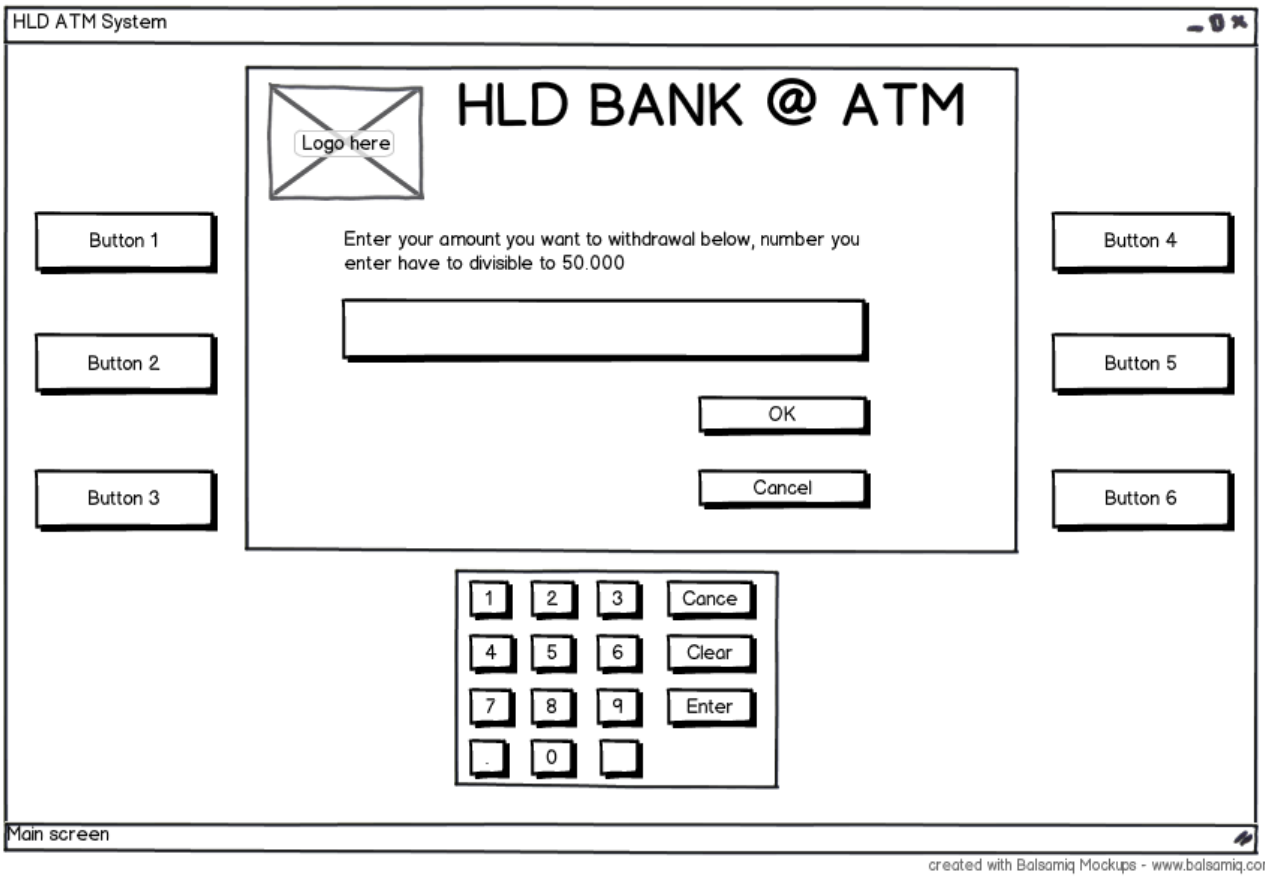
7.2.1 Withdraw

Name	Withdraw money
Description	This use case allows customer to withdraw moneys.
Actor	Customers
Trigger	When user clicking on 'Withdraw' button in the screen.
Pre-condition	After Validation success, customer input amount money which they want to withdraw.
Post-condition	Receive money, write log into system, decide print receipt.

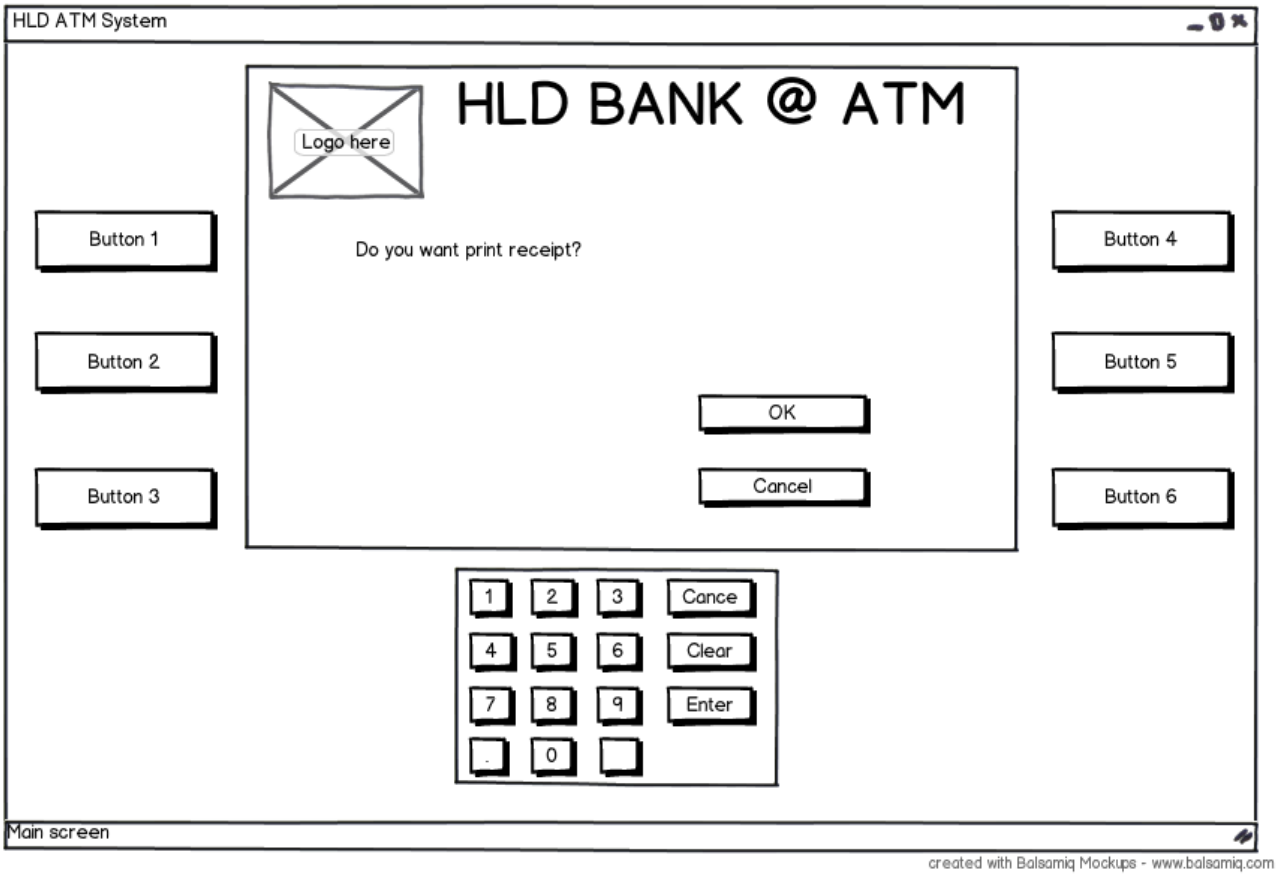
Screen Design & Data Description



SC01 : Main screen when customer access “Withdraw”

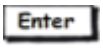


SC02: Screen display when customer choose “Enter other” from SC01 screen.



SC03: Screen confirm “Print receipt” when customer choose “OK” from SC 01 screen or “OK” from SC 02 screen

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Function “OK”
Button 6	button	Function “Cancel”
1	button	Number “1” SC03
2	button	Number “2” SC03

Item	Type	Description
	button	Number “3” SC03
	button	Number “4” SC03
	button	Number “5” SC03
	button	Number “6”
	button	Number “7”
	button	Number “8”
	button	Number “9”
	button	Number “0”
	button	Function “Cancel”
	button	Clear text input
	button	Function “OK”

Activities Flow

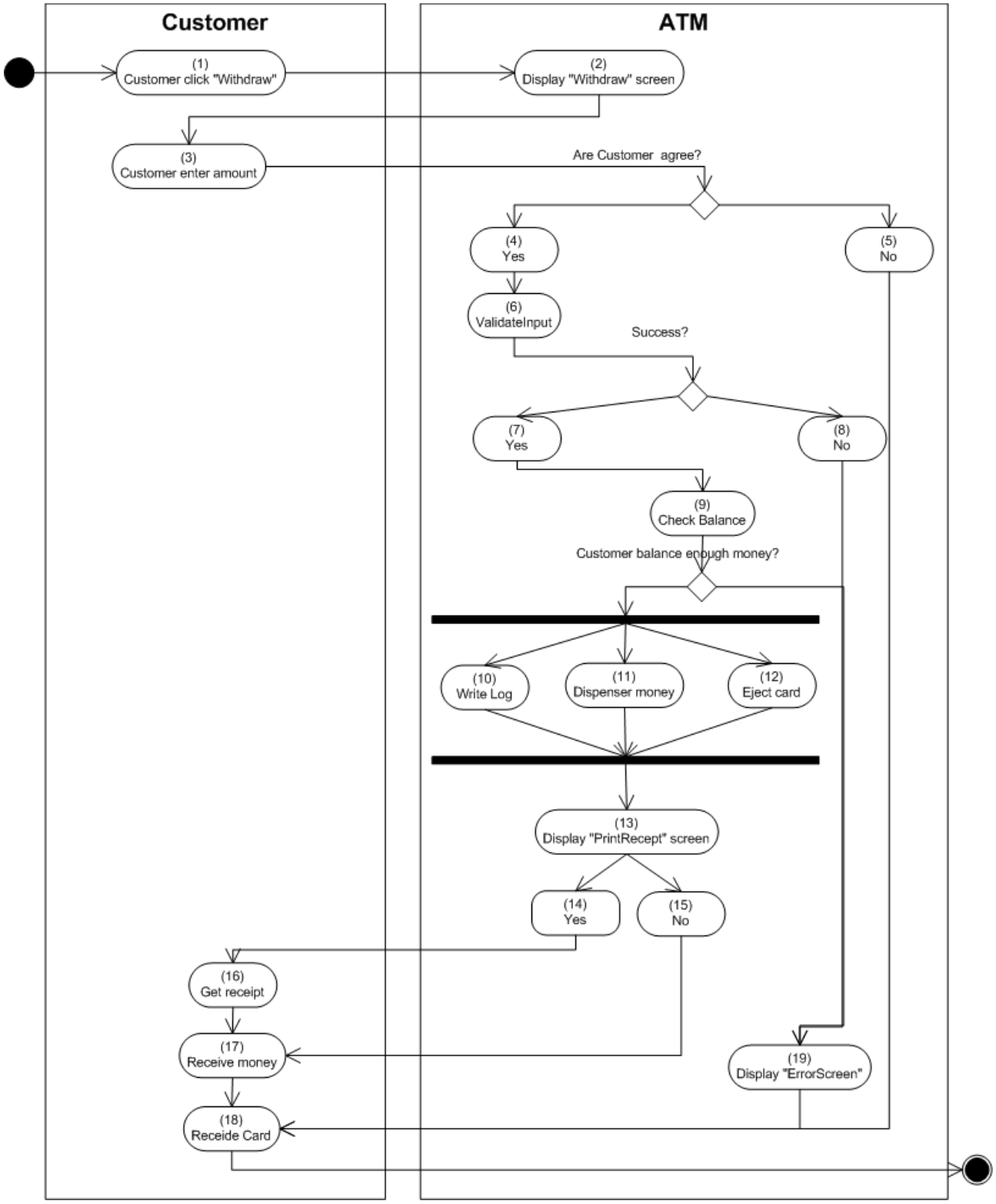


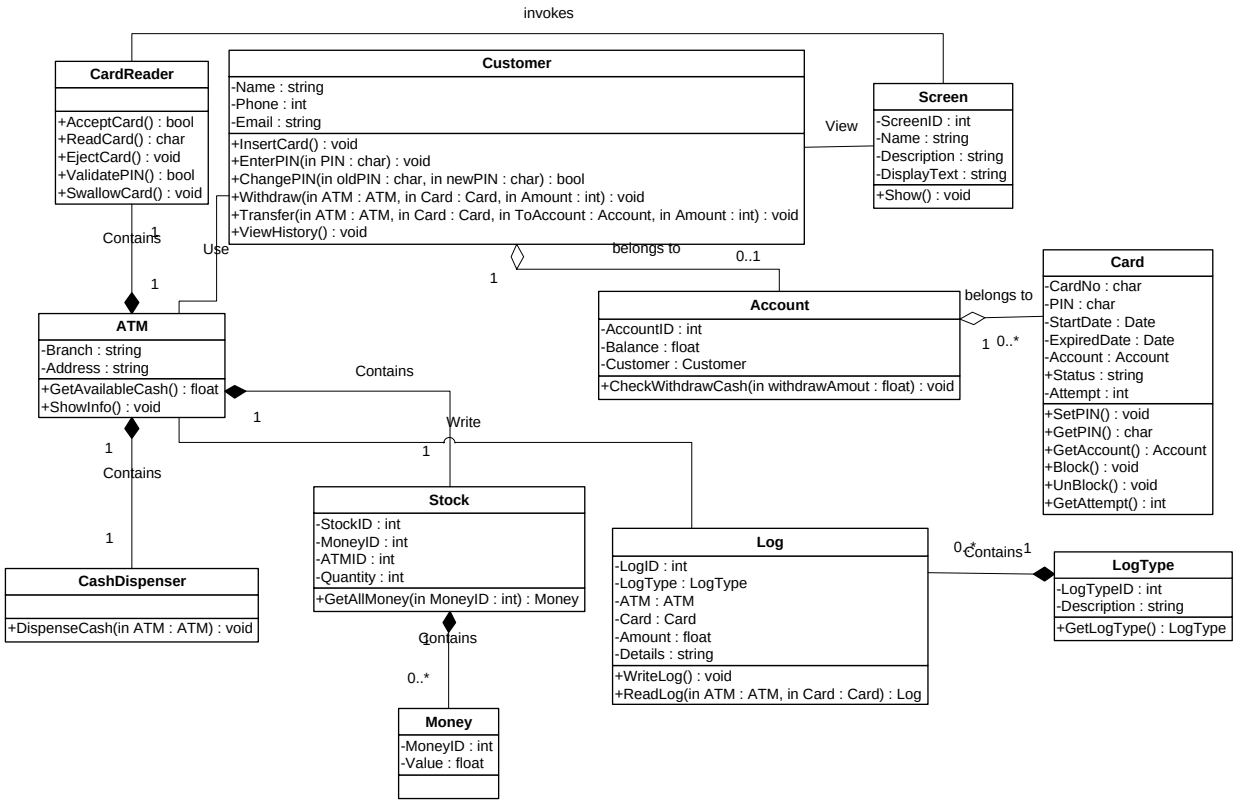
Figure 4.3:Activities flow of withdraw

Detail Processing

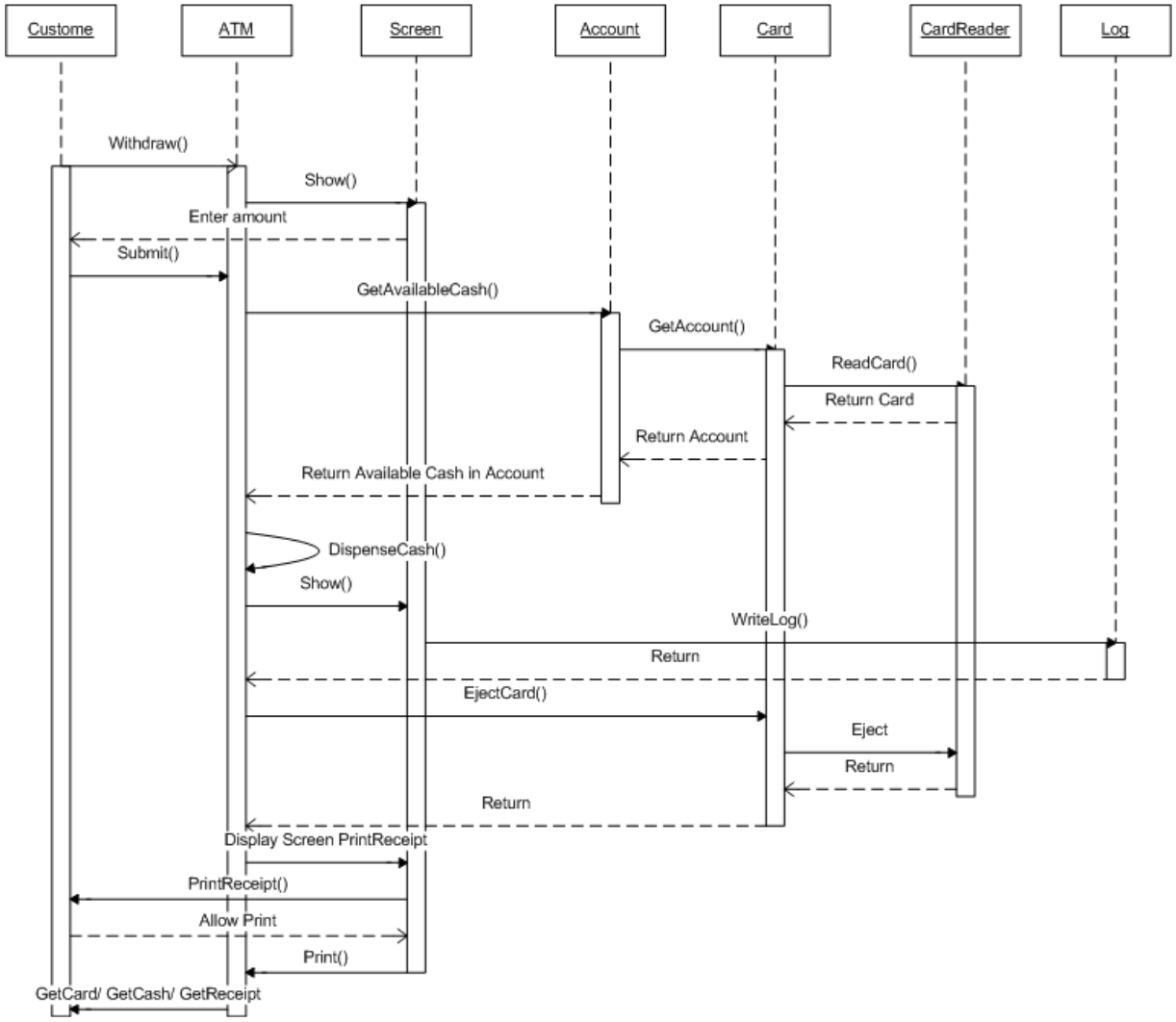
Activity	BR Code	Description
(6)	BR01	**ValidateInput:** ❖ System check balance:

		➢ IF enterCash > MinValue ➢ OR enterCash <MaxValue ➢ OR enterCash mod 50.000 <> 0 THEN ○ Set <<ShowedScreen>> = [Withdraw Failed Screen] ○ Return FALSE
(9)	BR02	**Check balance:** ➢ IF enterCash < AccountBalance THEN ○ Set <<Account Balance>> = <<Account Balance>> - enterCash ○ Write Log. ➢ ELSE ○ Set <<ShowedScreen>> = [Withdraw Failed Screen]
(11)	BR03	**Dispenser money:** ❖ Calculate enterCash customer enter and MoneyType and Value, number of this MoneyType in this ATM, Return Cash to customer

Class diagram



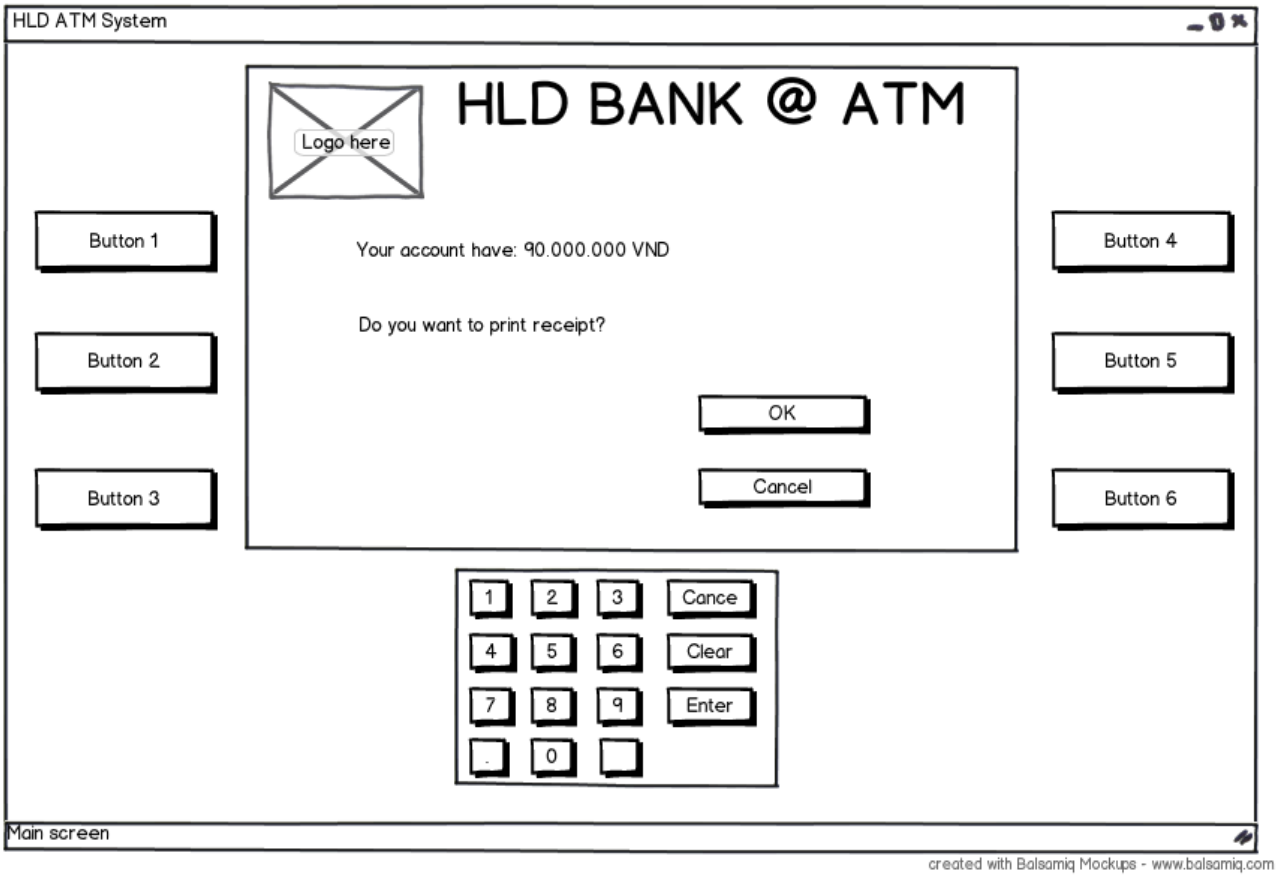
Sequense diagram



7.3 Use case 03: Check Balance – LuyenNV

Name	CheckBalance
Description	This use case allows Customer to check their Balance.
Actor	Customer
Trigger	When Customer click “Check balance” button in MainScreen
Pre-condition	Customer had Validation to ATM.
Post-condition	ATM system display balance of Customer.

Screen Design & Data Description



SC 01 : Display Balance of customer and confirm PrintReceipt

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Do nothing at this screen
Button 6	button	Do nothing at this screen
1	button	Do nothing at this screen
2	button	Do nothing at this screen
3	button	Do nothing at this screen

Item	Type	Description
4	button	Do nothing at this screen
5	button	Do nothing at this screen
6	button	Do nothing at this screen
7	button	Do nothing at this screen
8	button	Do nothing at this screen
9	button	Do nothing at this screen
0	button	Do nothing at this screen
Cancel	button	Do not print receipt
Clear	button	Do nothing at this screen
Enter	button	Allow print receipt

Activities Flow

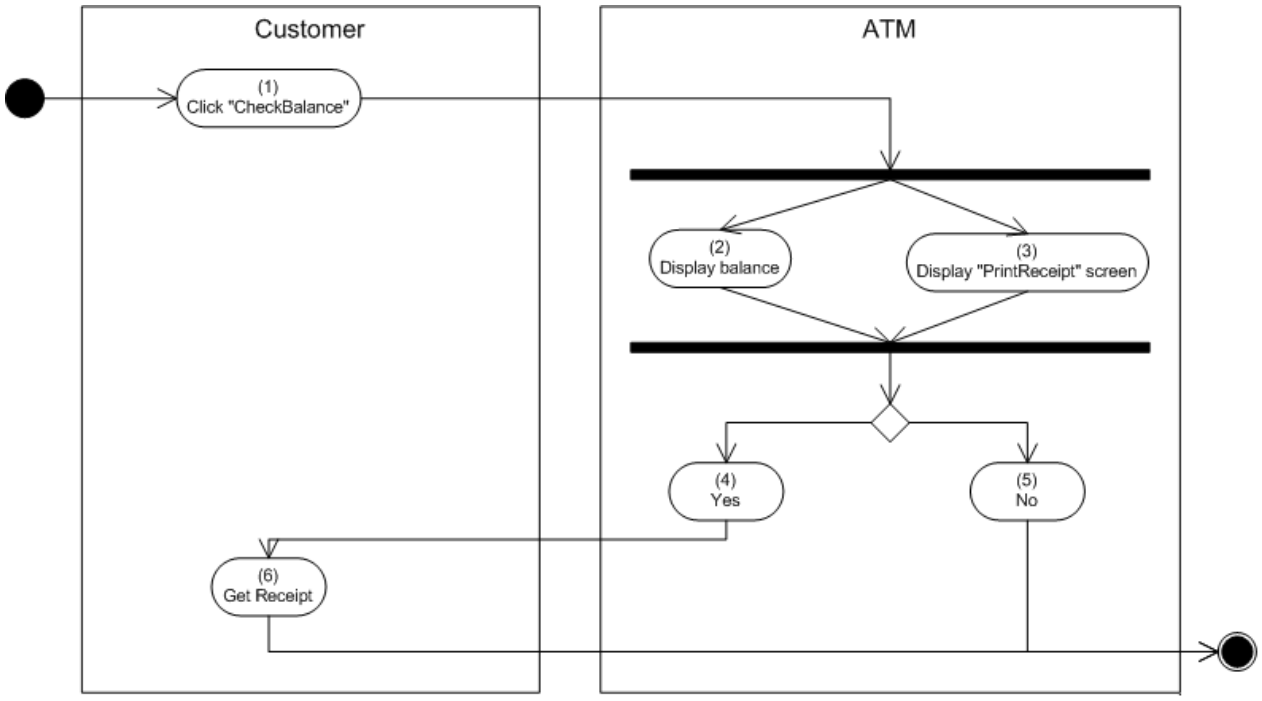


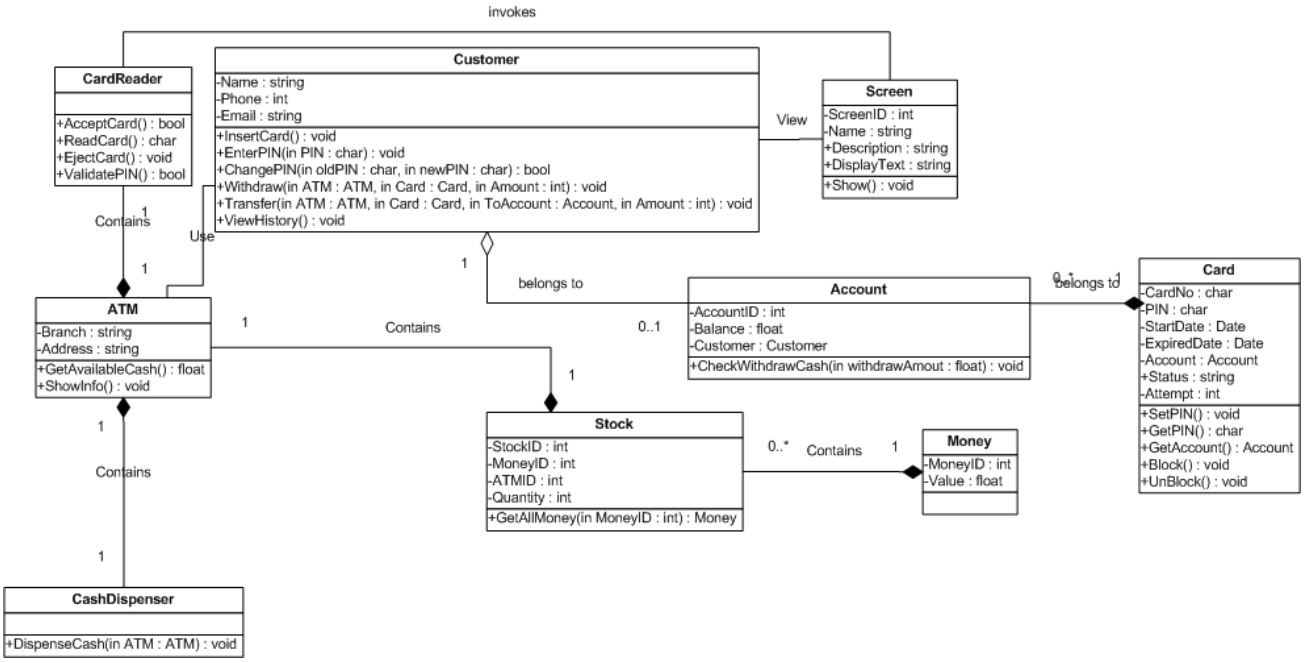
Figure 4.4:Activities flow of check balance

Detail Processing

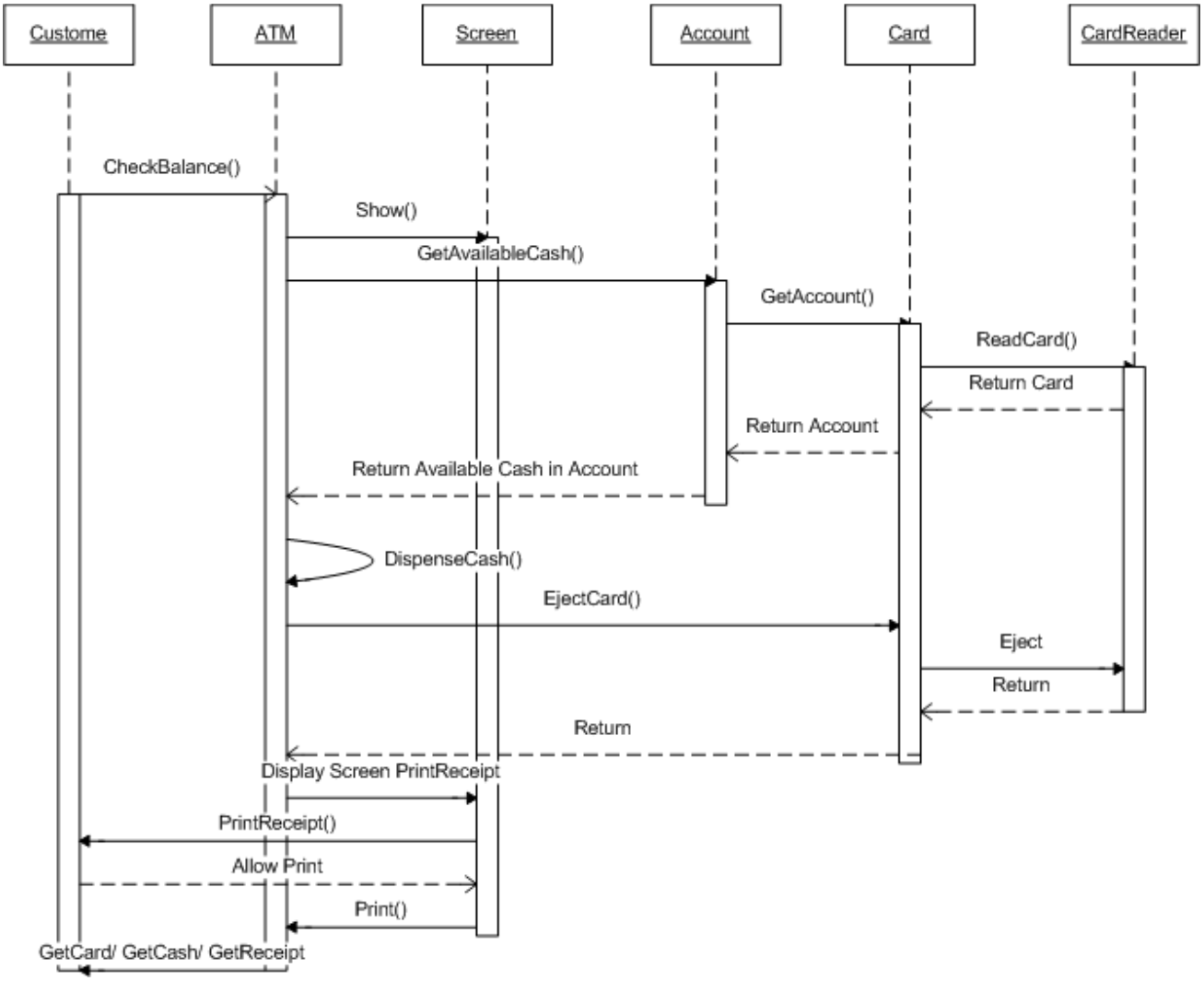
Activity	BR Code	Description
(2)	BR01	**Display balance:**

		➢ Get balance of customer from database and display to screen.

Class diagram



Sequense diagram

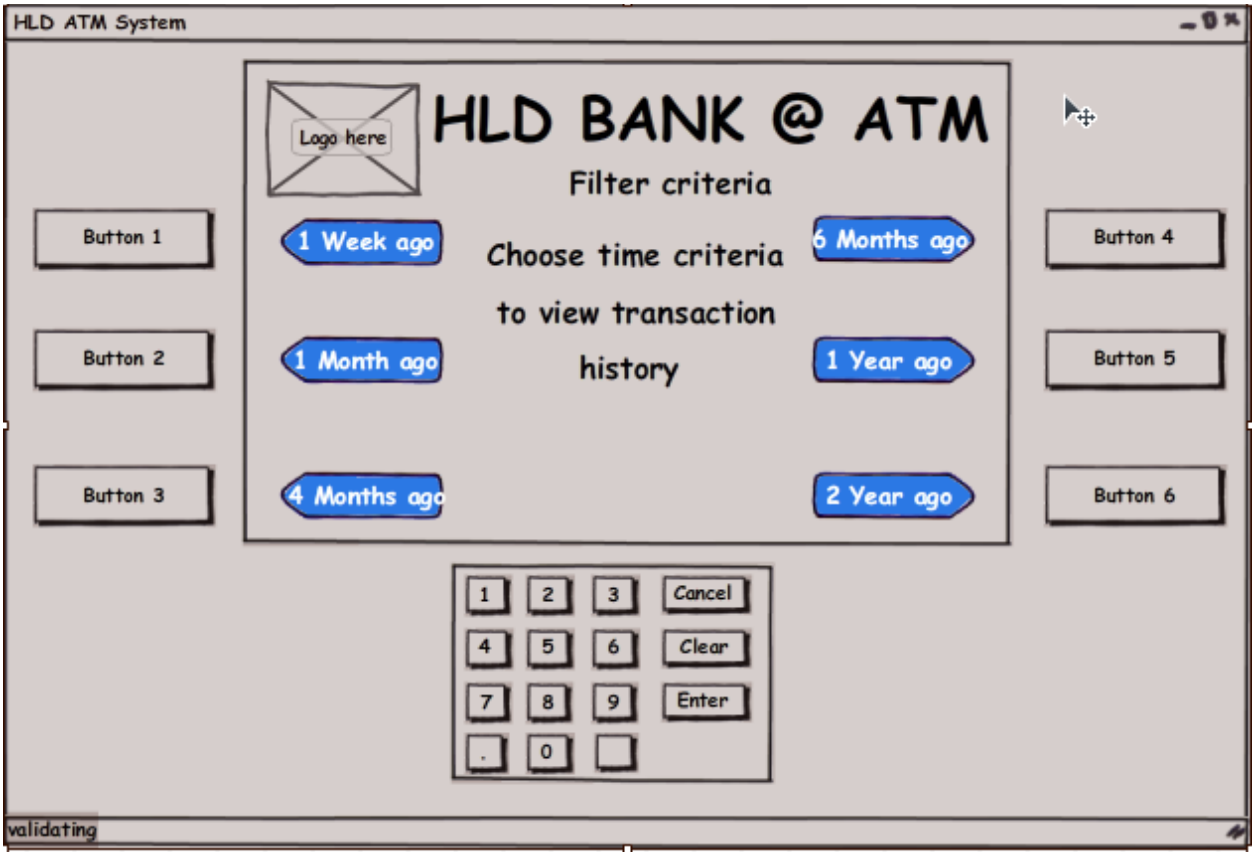


7.4 Use case 04: View History – HuyVQ4

7.4.1 View History

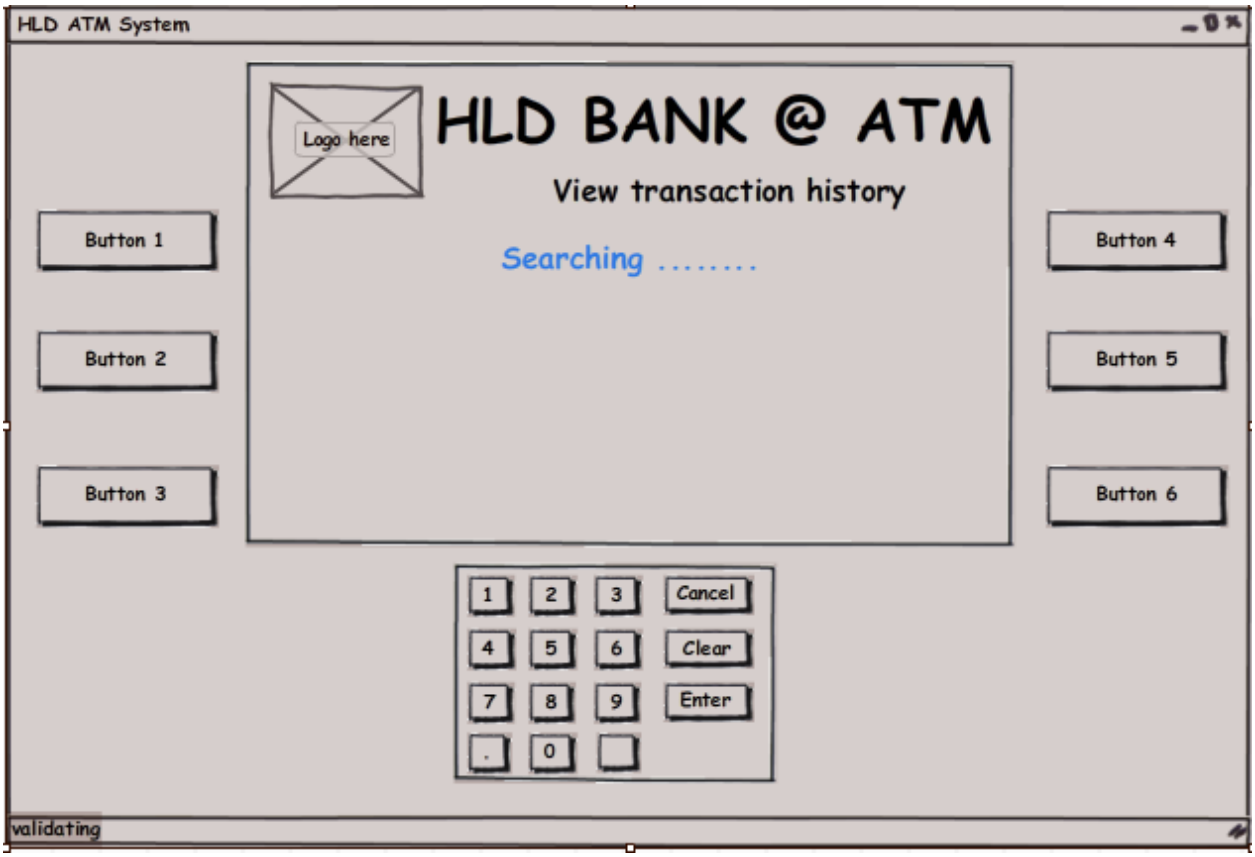
Name	View history
Description	This use case allows customer to view all transaction has been done.
Actor	Authenticated Customer
Trigger	When user clicked on 'View History' button at [Select Transaction] screen.
Pre-condition	Customer was authenticated succesfully.
Post-condition	All transaction has been done by the customer will show.

Screen Design & Data Description



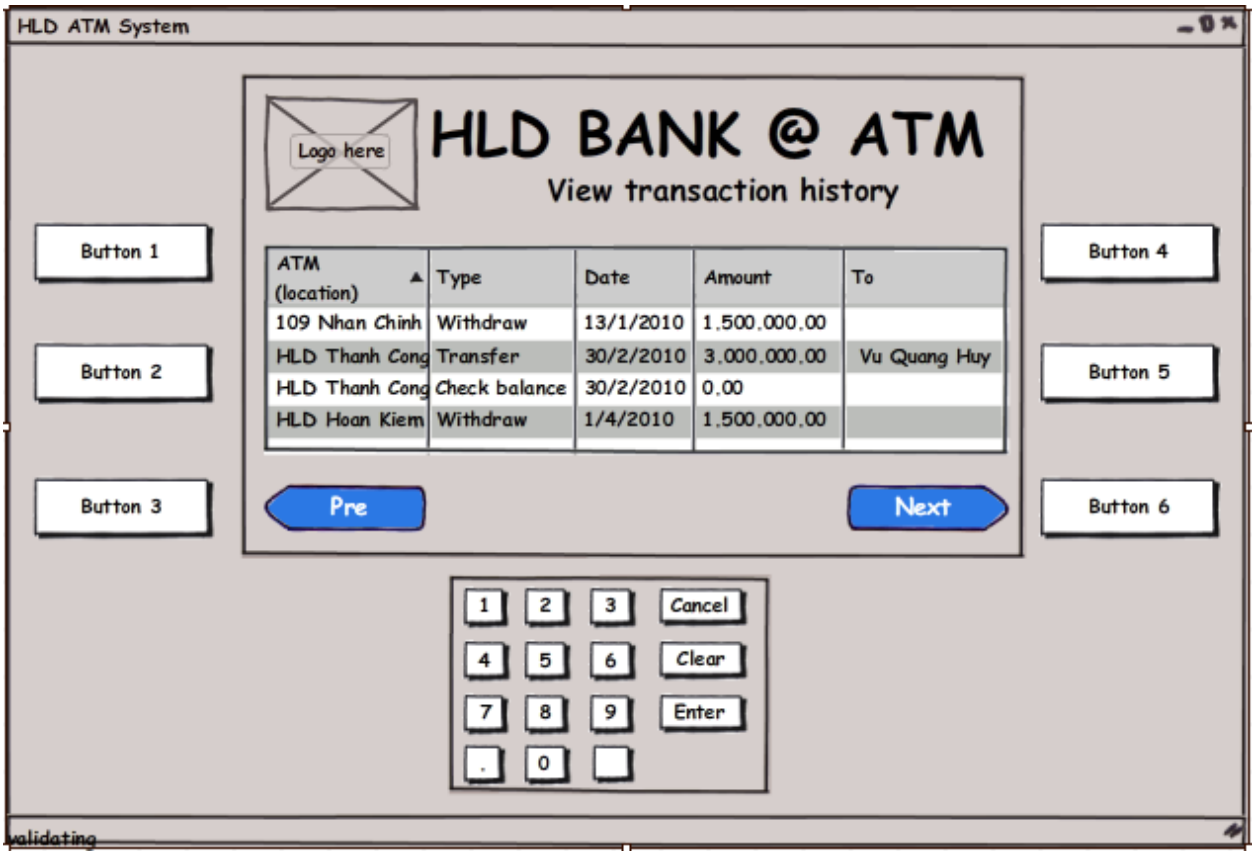
SC 01 : Screen list the time criterias to customer to choose

Item	Type	Description
Button 1	button	Set TimeCriteria = Current Date – 7 day
Button 2	button	Set TimeCriteria = Current Date – 30 day
Button 3	button	Set TimeCriteria = Current Date – 120 day
Button 4	button	Set TimeCriteria = Current Date – 180 day
Button 5	button	Set TimeCriteria = Current Date – 365 day
Button 6	button	Set TimeCriteria = Current Date – 700 day
Others button	Button	Do nothing at this screen



SC 02 : Waitted screen when system is searching.

Item	Type	Description
All button	Button	Do nothing at this screen



SC 03 : Screen show search results paged.

Item	Type	Description
Button 3	button	Show previous search results paged.
Button 6	button	Show next search results paged.
Others button	Button	Do nothing at this screen

Activities Flow

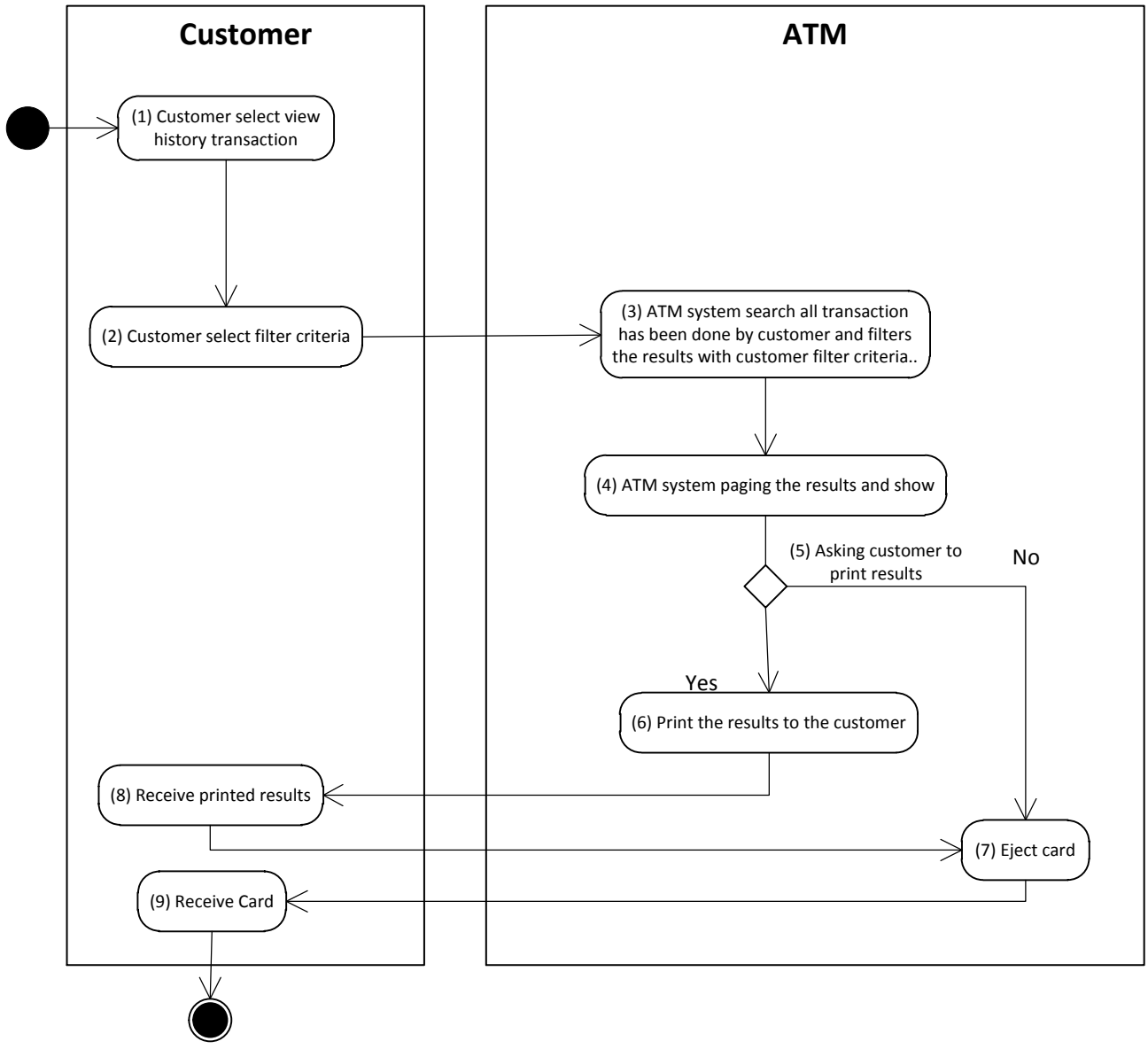


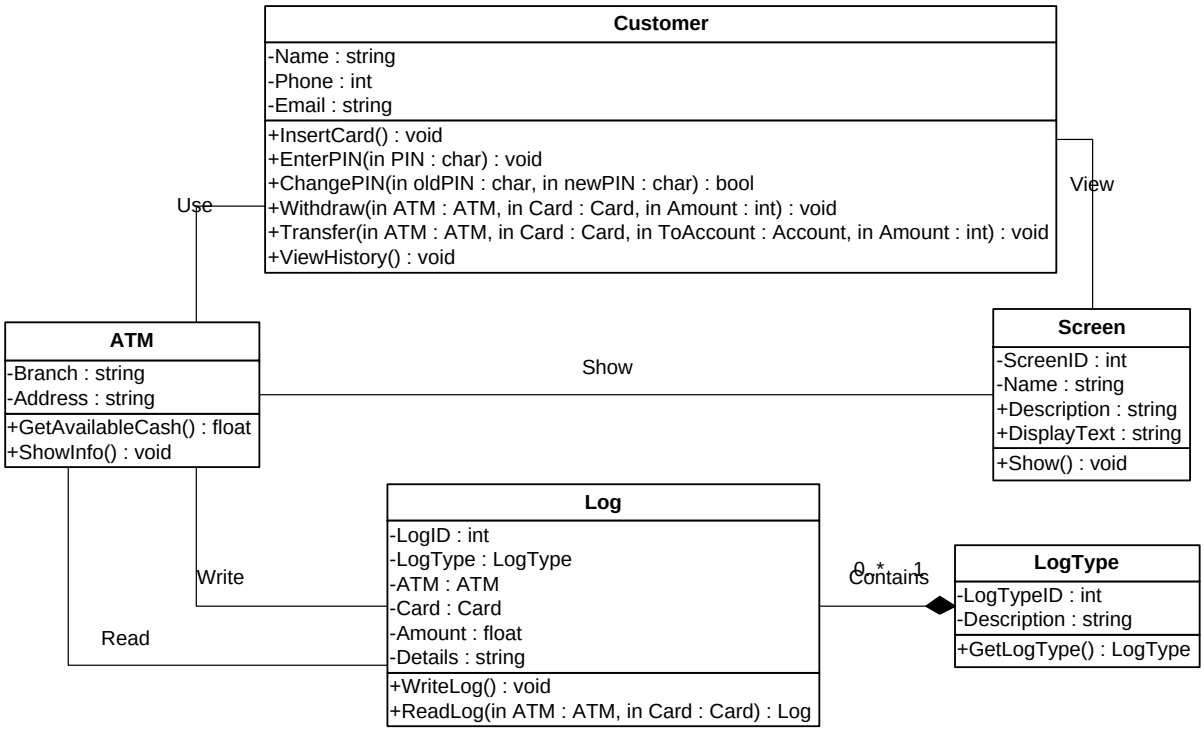
Figure 4.5:Activities flow of check balance

Detail Processing

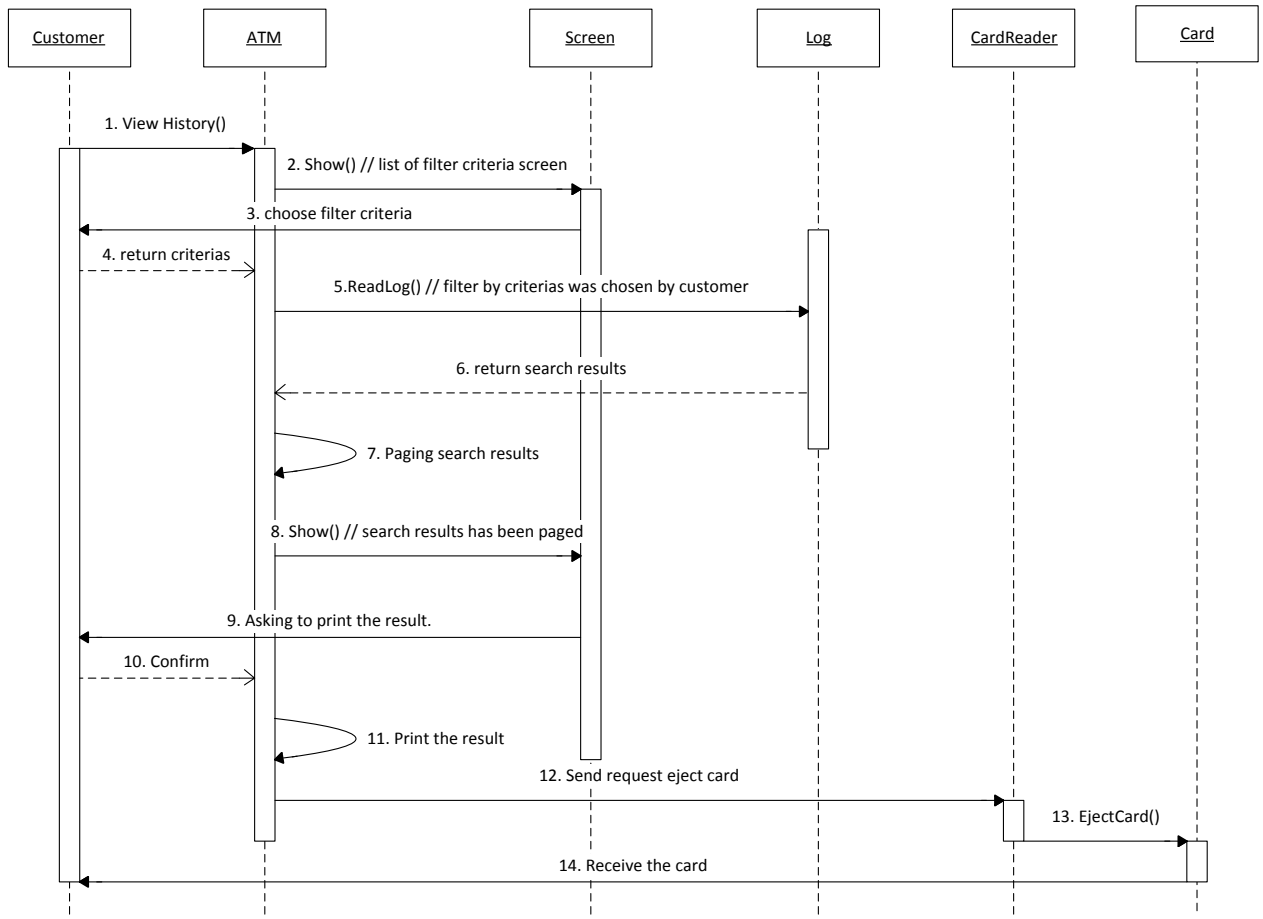
Activity	BR Code	Description

(3)	BR01	**Checking rules:** ❖ Search transaction/ log ➢ Set <<Criteria>> = [Filter Criteria] the customer has chosen. ➢ System search from database all transaction/ log with: ▪ <<LogStatus>> = [Successful] ▪ <<LogDate>> = <<Criteria.Date>> ▪ <<LogType>> in ([Withdraw], [Transfer], [CheckBalance], [ChangePIN])
(4)	BR02	**Paging rules** ❖ Paging ➢ Set <<NumPerPage>> = [Number records per page] in system configuration. ➢ Paging the search results follow <<NumPerPage>>

Class diagram



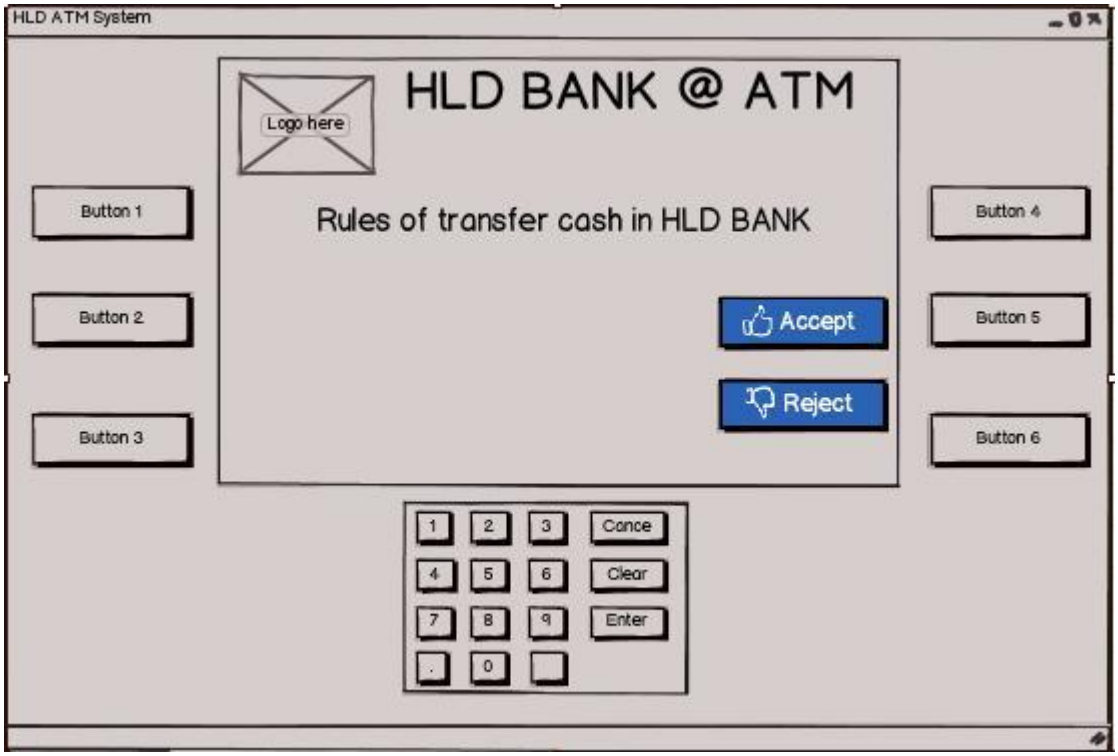
Sequense diagram



7.5 Use case 05: Cash Transfer – DucNA9

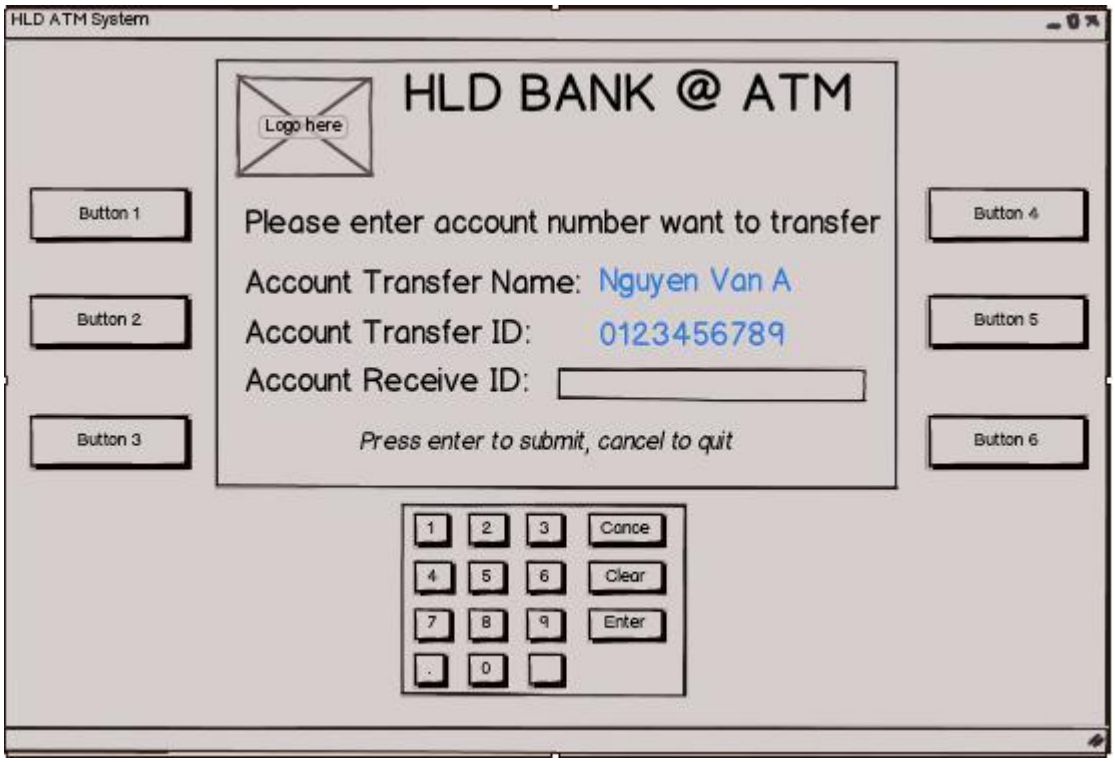
Name	Cash Transfer
Description	This use case allows customer transfer cash from his/her account to another account
Actor	Customer
Trigger	When user clicked on 'Cash Transfer' button at main screen.
Pre-condition	After validation success, customer enter account and amount of cash which want to transfer.
Post-condition	Write log into system, decide print receipt (Yes/No)

Screen Design & Data Description



Screen 01: Main screen when require customer enter account want to transfer cash, show rules of transfer

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Accept rules of transfer cash in ATM
Button 6	button	Reject and stop transaction
0 1 2 3 4 5 6 7 8 9	button	Do nothing at this screen
Cancel	button	Stop transaction
Clear	button	Do nothing at this screen
Enter	button	Do nothing at this screen

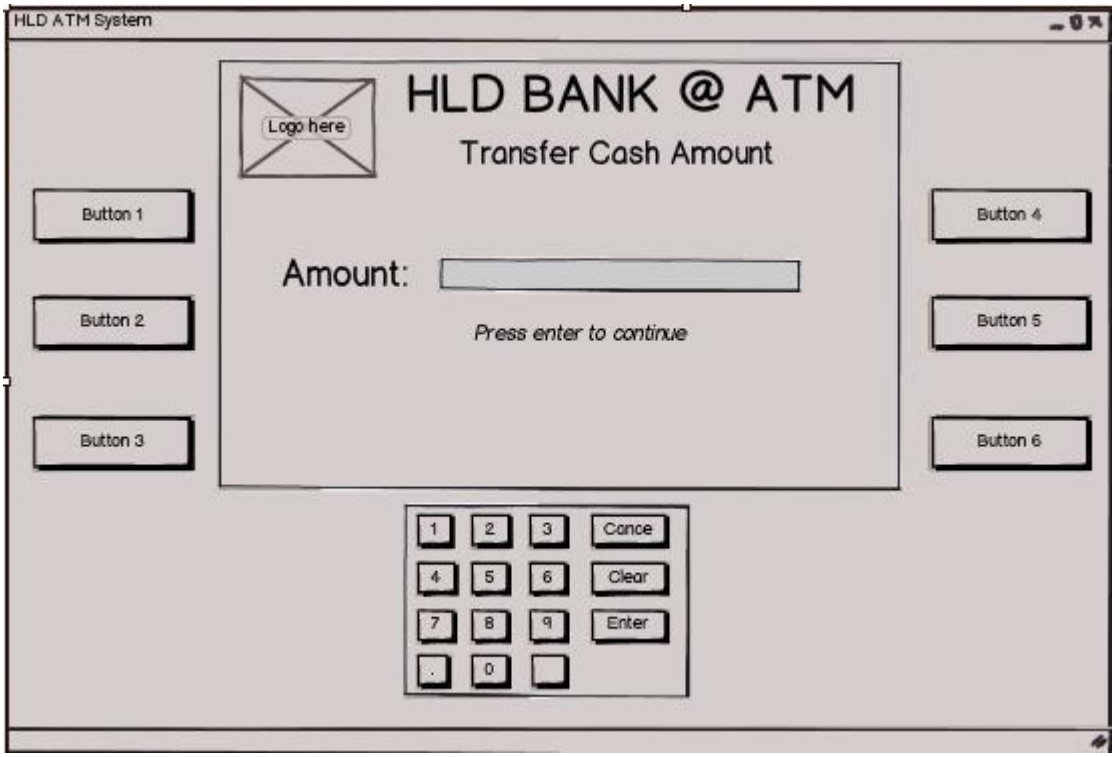


Screen 02: Display account transfer and receive account

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Do nothing at this screen
Button 6	button	Do nothing at this screen
0 1 2 3 4 5 6 7 8 9	button	Accept input of customer
Cancel	button	Stop transaction
Clear	button	Clear text in textbox
Enter	button	Submit receive account ID which want to transfer

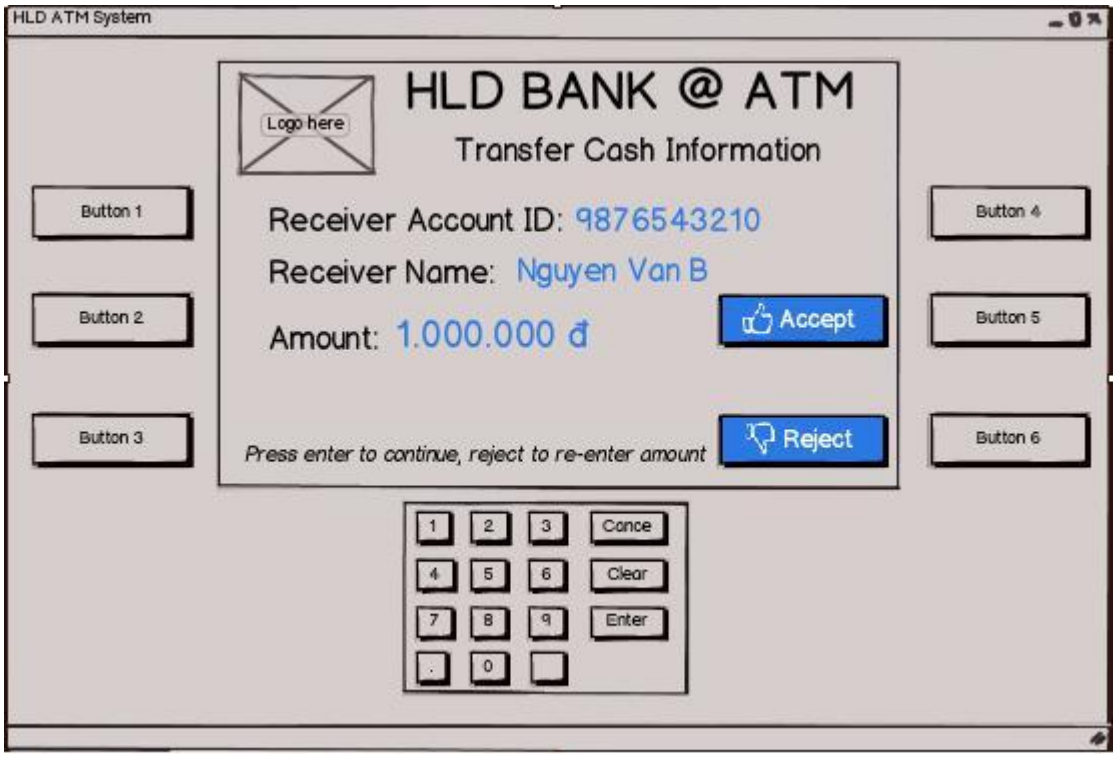
Screen 03: Display information about receive account

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Continue transfer cash
Button 6	button	Back to enter receive account ID
0 1 2 3 4 5 6 7 8 9	button	Do nothing at this screen
Cancel	button	Do nothing at this screen
Clear	button	Do nothing at this screen
Enter	button	Do nothing at this screen



Screen 04: Display allow customer enter amount which want to transfer

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Do nothing at this screen
Button 6	button	Do nothing at this screen
0 1 2 3 4 5 6 7 8 9	button	Accept input of customer
Cancel	button	Do nothing at this screen
Clear	button	Clear text in textbox
Enter	button	Submit amount and continue



Screen 05: Display screen allow customer confirm transfer cash

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Accept to transfer cash
Button 6	button	Reject to transfer cash and back to previous screen
0 1 2 3 4 5 6 7 8 9	button	Do nothing at this screen
Cancel	button	Do nothing at this screen
Clear	button	Do nothing at this screen
Enter	button	Do nothing at this screen

Screen 06: Display screen allow customer choose receive receipt or not

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Accept to receive receipt
Button 6	button	Reject to receive receipt
0 1 2 3 4 5 6 7 8 9	button	Do nothing at this screen
Cancel	button	Do nothing at this screen
Clear	button	Do nothing at this screen
Enter	button	Do nothing at this screen

Screen 07: Display screen to notice customer that receive account not exist and re-enter account to transfer

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Do nothing at this screen
Button 6	button	Do nothing at this screen
0 1 2 3 4 5 6 7 8 9	button	Accept input of customer
Cancel	button	Do nothing at this screen
Clear	button	Do nothing at this screen
Enter	button	Continue transaction

Screen 08: Display screen to notice customer that his/her account isn't enough money to transfer and re-enter amount he/she want to transfer

Item	Type	Description
Button 1	button	Do nothing at this screen
Button 2	button	Do nothing at this screen
Button 3	button	Do nothing at this screen
Button 4	button	Do nothing at this screen
Button 5	button	Do nothing at this screen
Button 6	button	Do nothing at this screen
0 1 2 3 4 5 6 7 8 9	button	Accept input of customer
Cancel	button	Do nothing at this screen
Clear	button	Do nothing at this screen
Enter	button	Continue transaction

Activities Flow

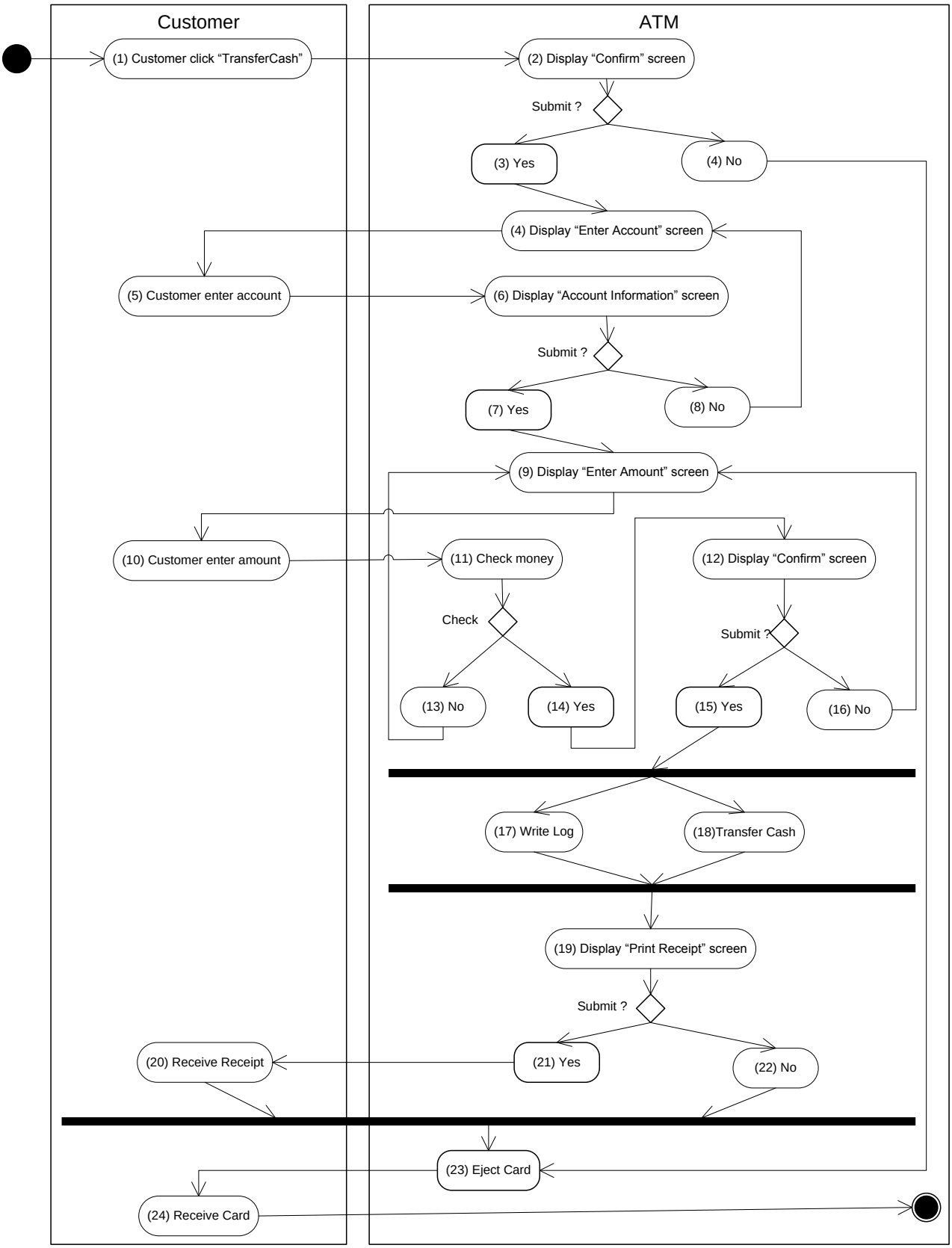
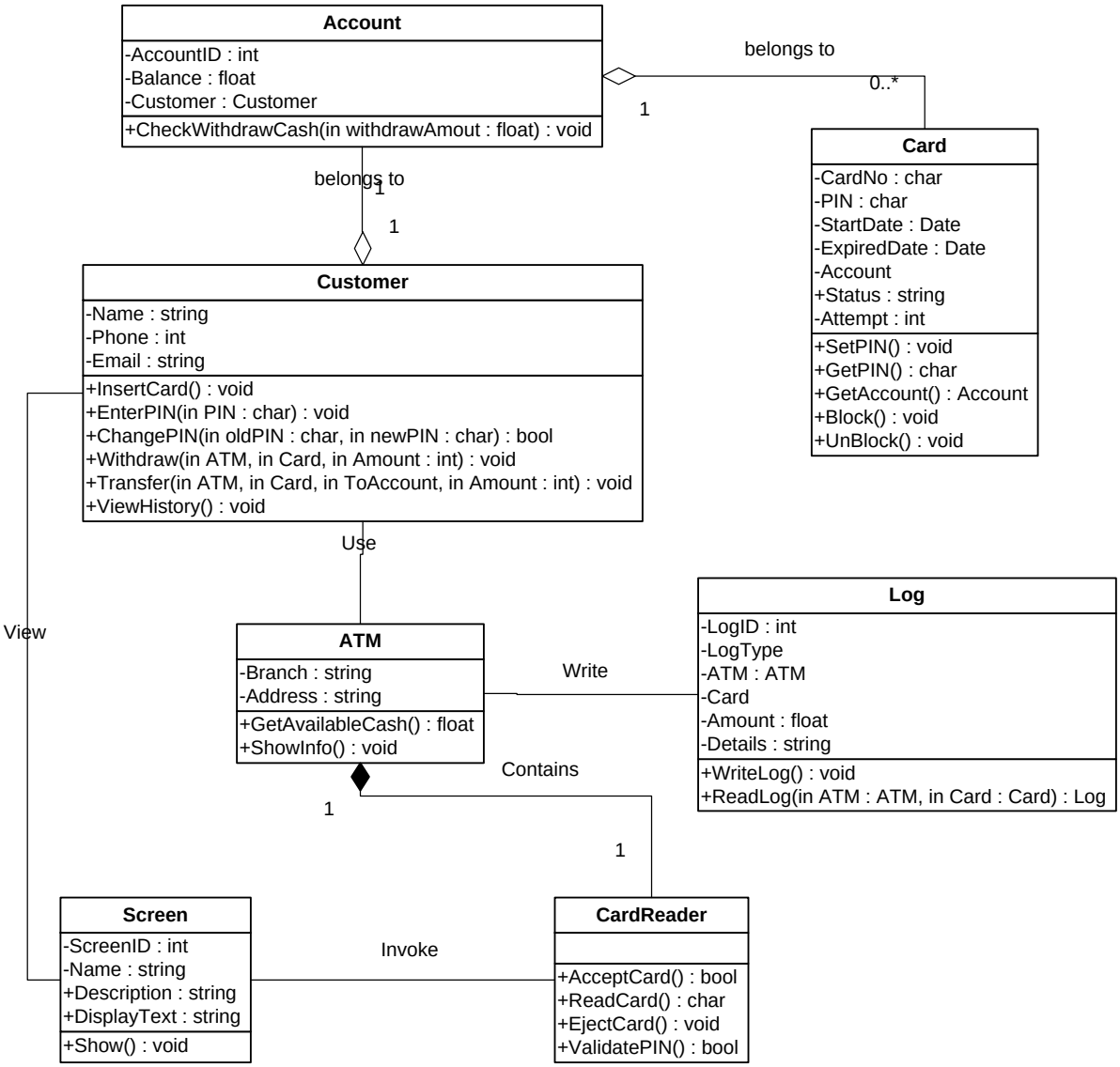


Figure 4.6:Activities flow of Cash transfer

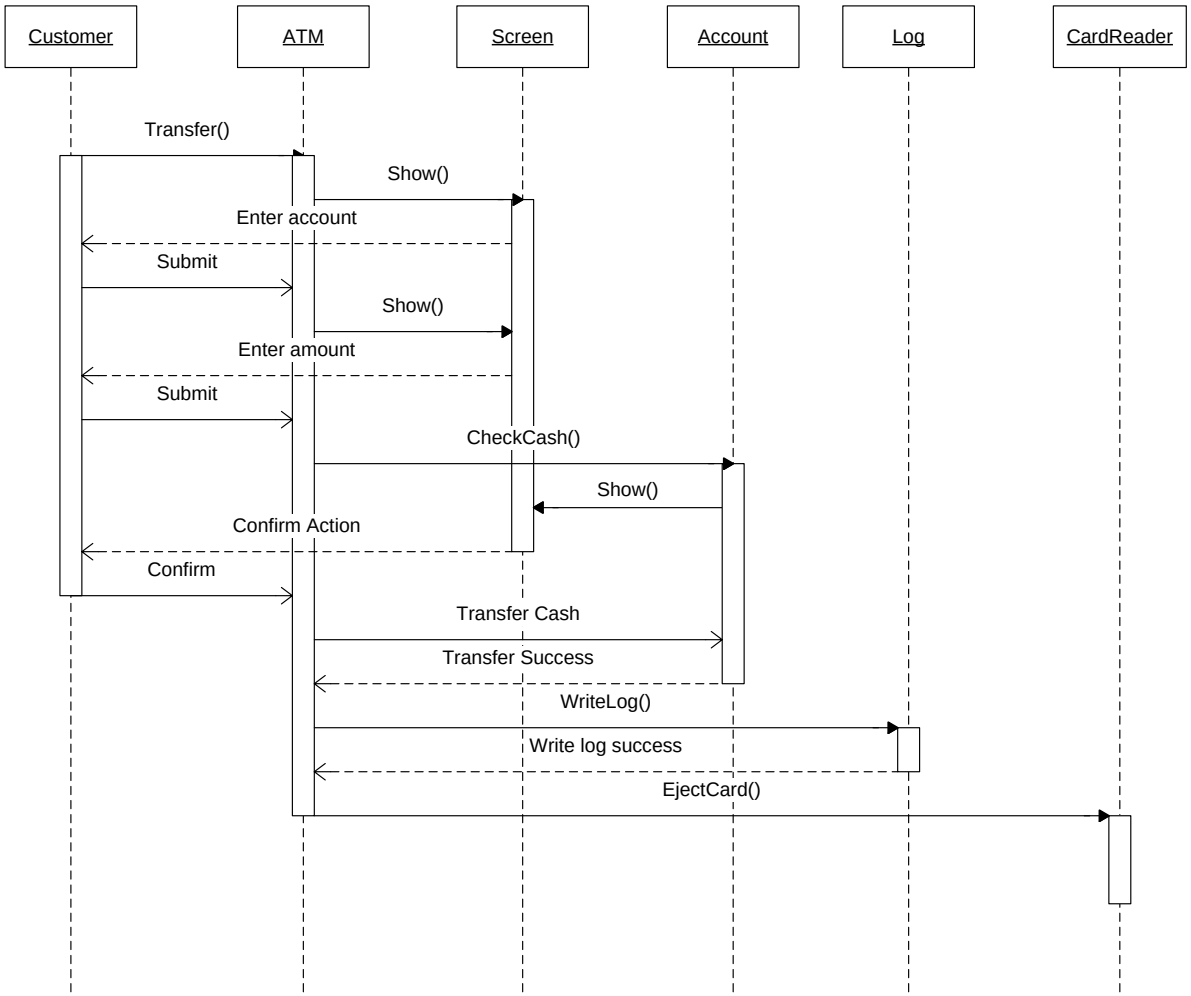
Detail Processing

Activity	BR Code	Description
(11)	BR01	**Check Money** ❖ IF <Customer> accept amount have just entered THEN ➢ Get balance of this account and compare with amount he/she want to transfer ➢ IF (Balance > amount) THEN ▪ Continue transaction ➢ ELSE ▪ DISPLAY “Your account not enough money to transfer” ▪ Back to previous screen to enter another amount
(18)	BR02	**Transfer Cash:** ❖ IF <Customer> click accept transfer cash THEN ➢ Get amount and balance of send account and receive account ➢ Plus amount to balance of receive account and subtract balance of send account

Class diagram



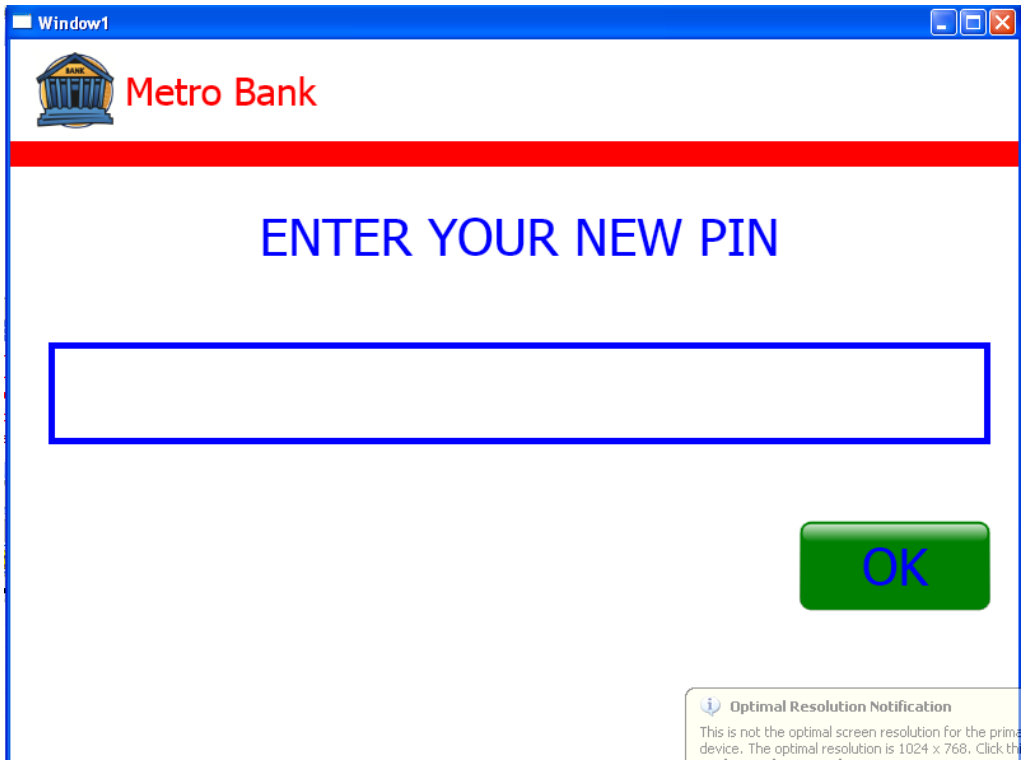
Sequense diagram



7.6 Use case 06: Change PIN – CuongLH3

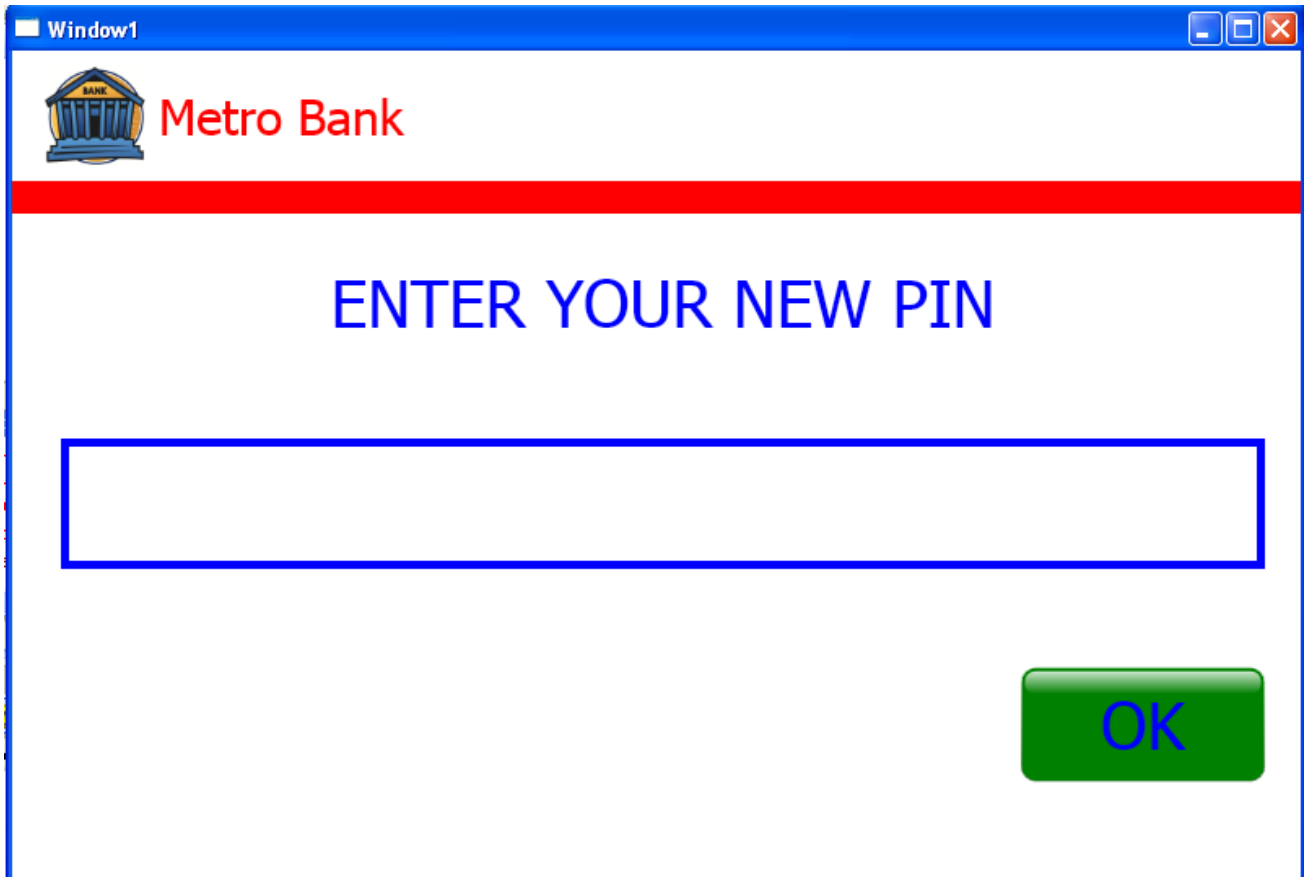
Name	Change PIN
Description	This use case allows customer to change his/her PIN
Actor	Customers
Trigger	When user clicking on 'Change PIN' button in the screen.
Pre-condition	After Validation success
Post-condition	PIN of customer will change

Screen Design & Data Description



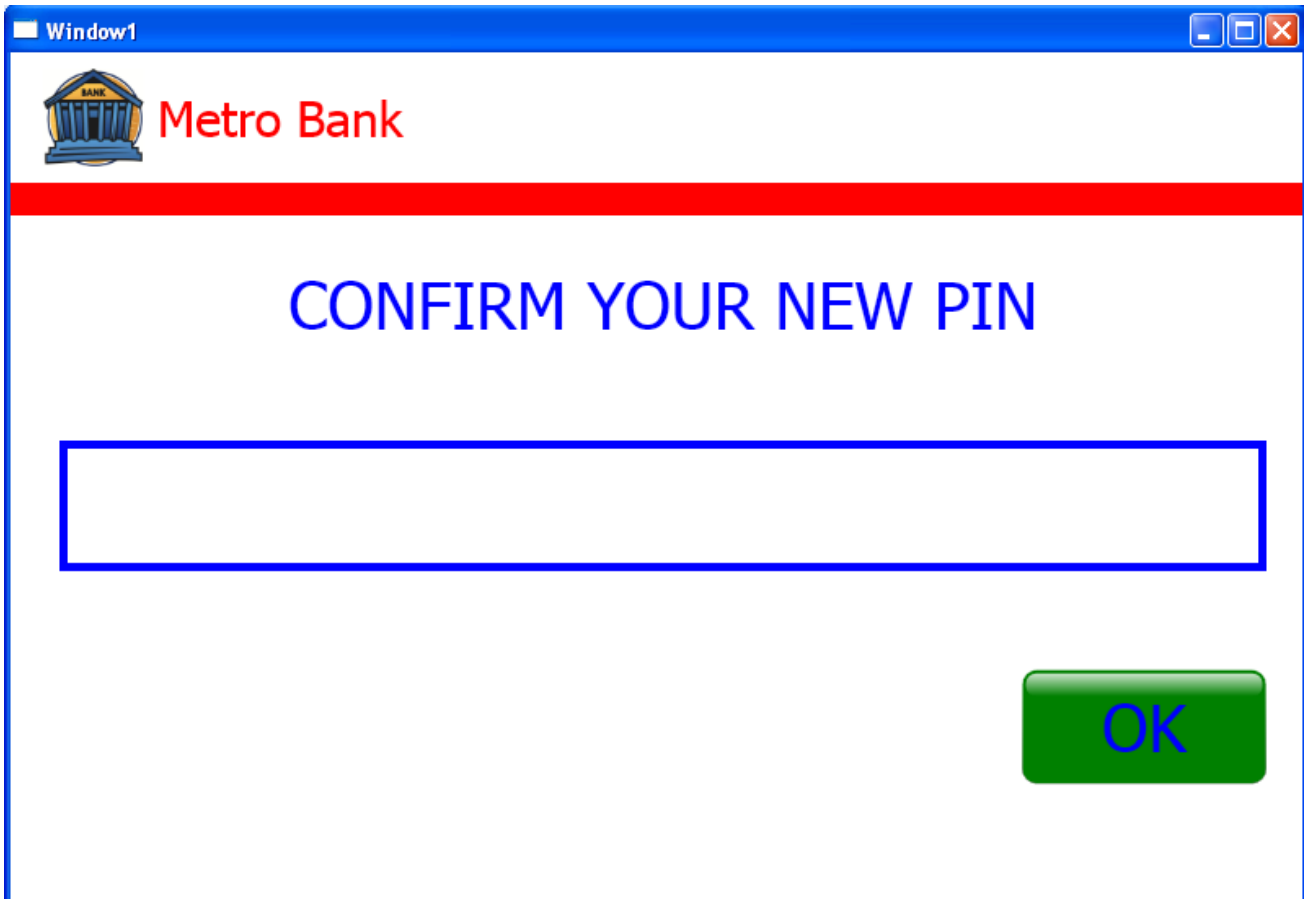
Screen 01: Display screen require customer enter old PIN

Item	Type	Description
	button	Submit old PIN



Screen 02: Display screen require customer enter new PIN

Item	Type	Description
	button	Submit enter new PIN



Screen 03: Display screen require customer re-enter new PIN

Item	Type	Description
	button	Submit re-enter new PIN

Activities Flow

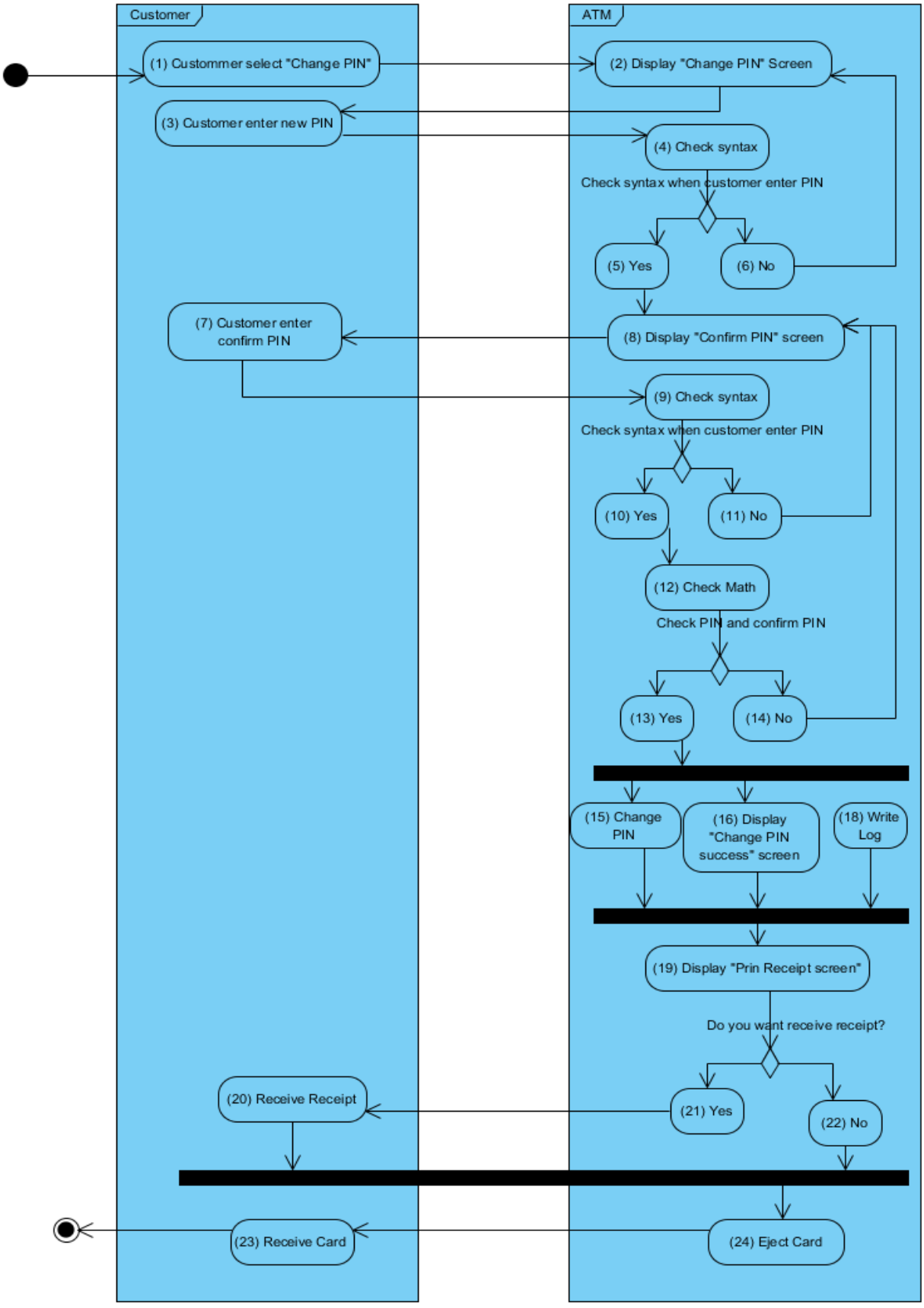
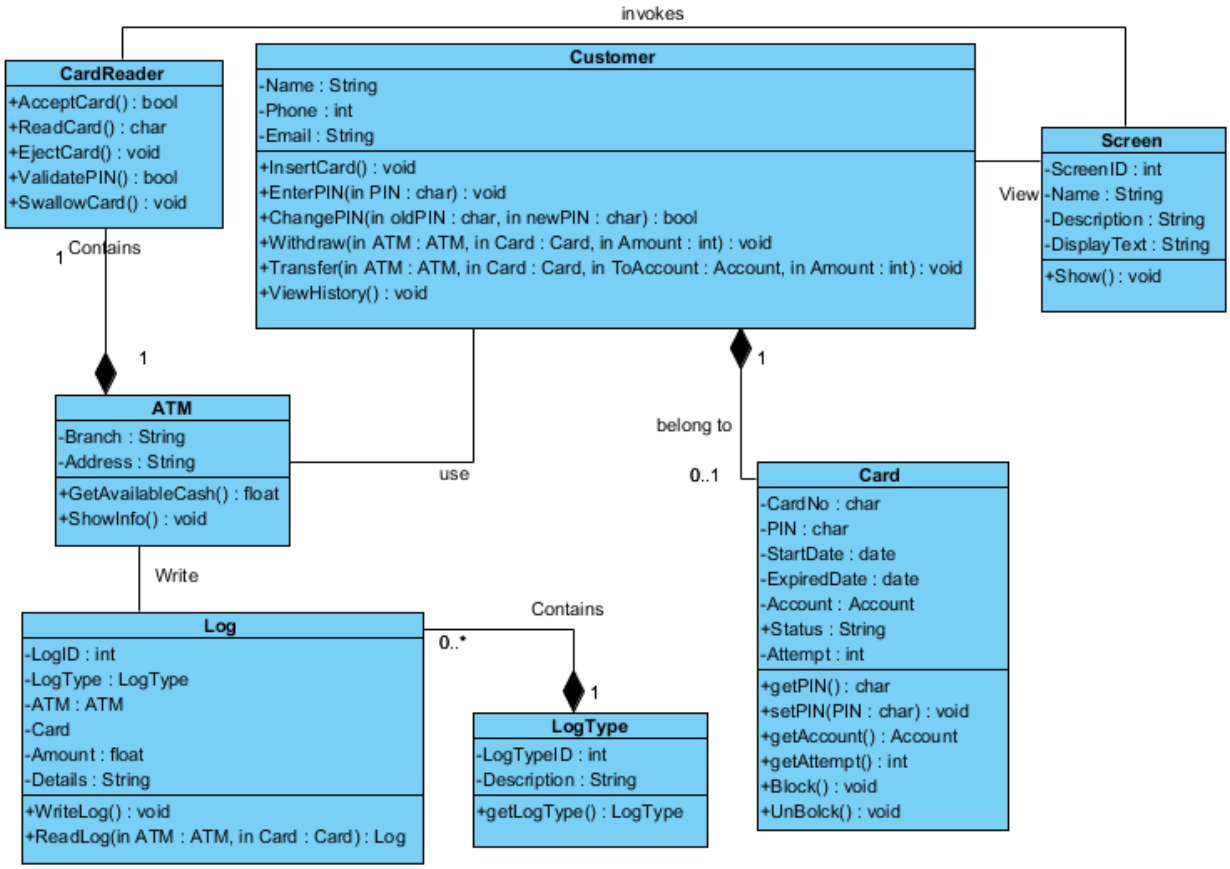


Figure 4.7:Activities flow of Change PIN

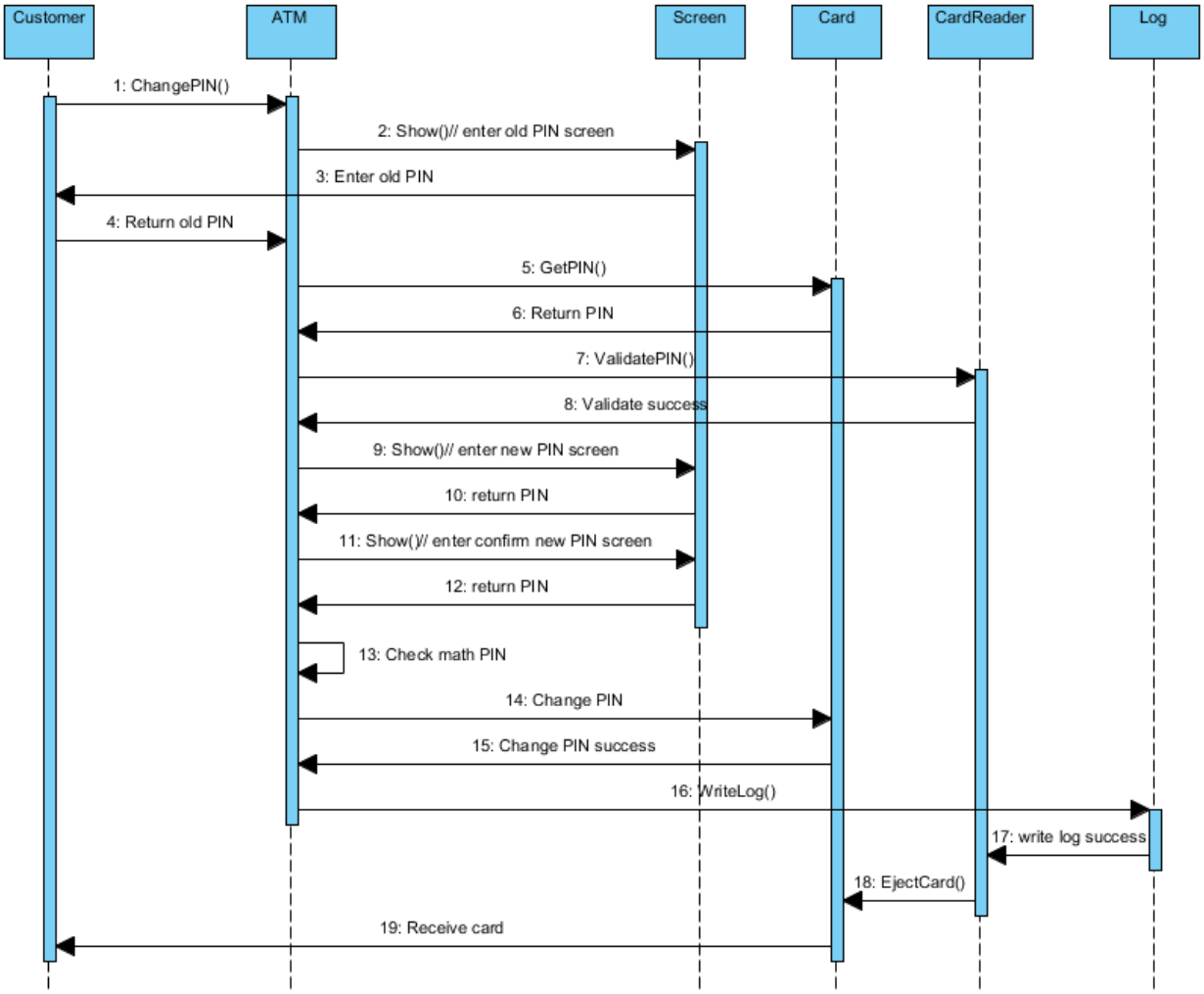
Detail Processing

Activity	BR Code	Description
(4) & (9)	BR01	**Check Syntax** ❖ Get old PIN of customer and compare with new PIN he/she have just entered ❖ IF old PIN match with new PIN THEN ➢ DISPLAY 'New pin not allow! Please enter again' ➢ Show change PIN screen again.
(15)	BR02	**Change PIN** ❖ Get new PIN and compare with new PIN which he/she re-enter ❖ IF 2 new PINs are match THEN ➢ Display "Your PIN changed" ➢ Eject Card and stop transaction

Class diagram



Sequense diagram



7.7 Use case 07: Logging – LuyenNV + HuyVQ4

7.7.1 Logging

Name	Logging
Description	This use case allows ATM system to log all transaction has been executed by customer
Actor	ATM System
Trigger	When user finish any transaction with ATM system
Pre-condition	A transaction has finished.
Post-condition	New record will be inserted to table Log in database stored information about customer transaction: date, transaction type, amount …

Screen Design & Data Description

No screen.

Activities Flow

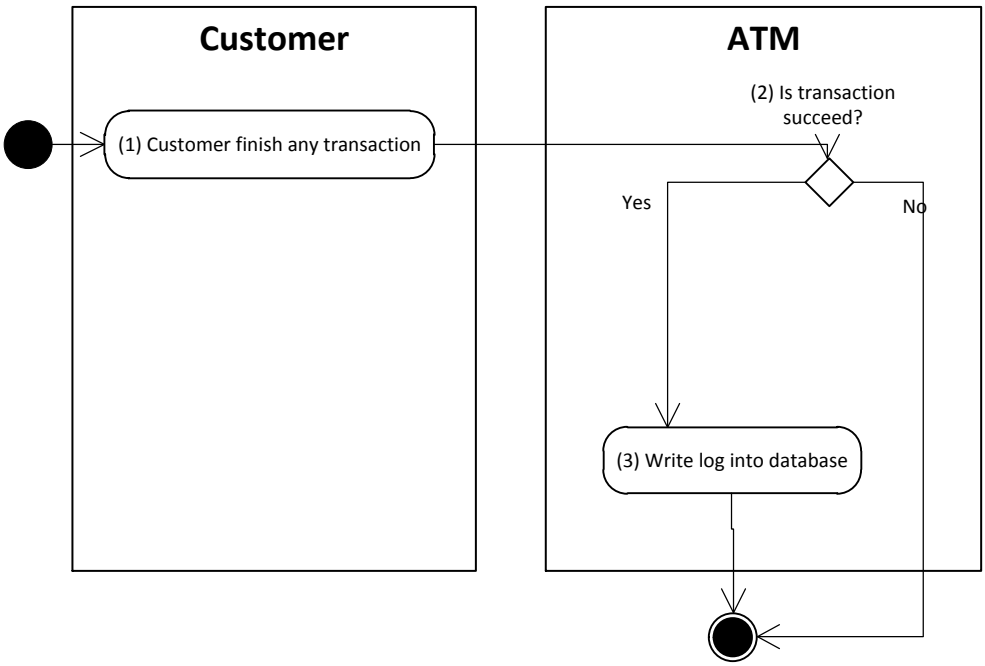
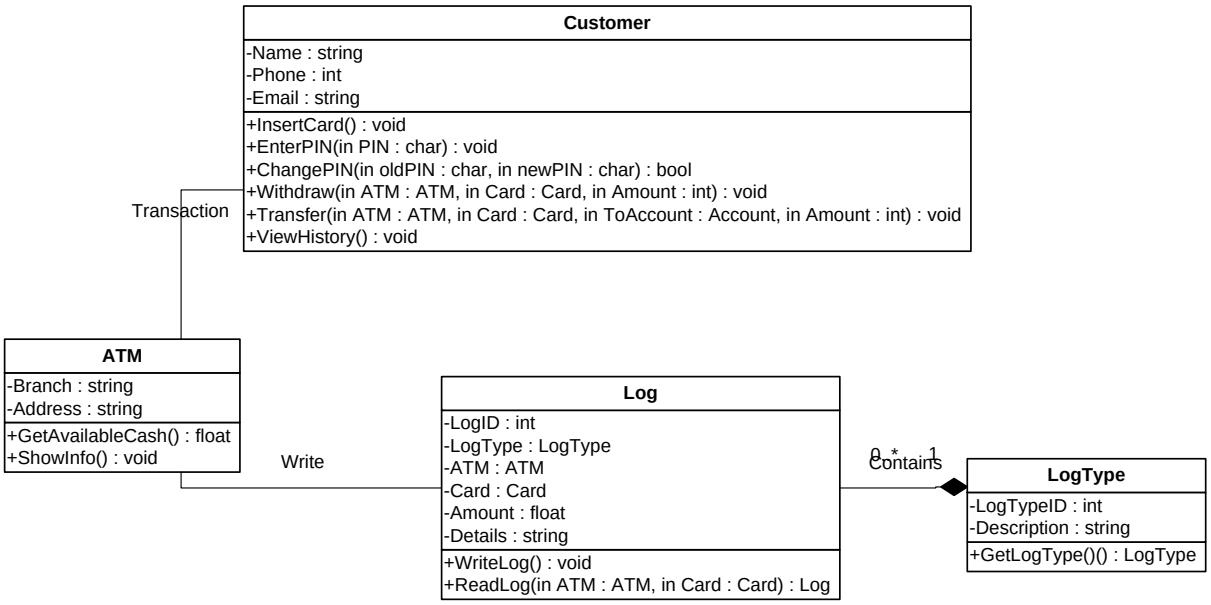


Figure 4.8:Activities flow of Logging

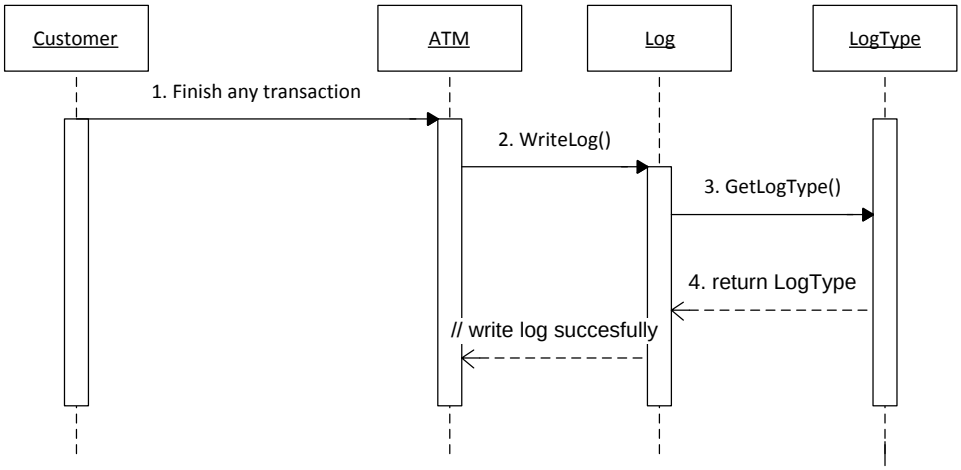
Detail Processing

Activity	BR Code	Description
(3)	BR01	❖ Insert new Log ➢ Set <<LogDate>> = [Current Time] ➢ Set <<LogType>> = [Transaction Type] ➢ Set <<ATM>> = [Current ATM Machine] ➢ Set <<Card>> = [Current Card] ➢ Set <<Amount>> = [Amount]

Class diagram



Sequense diagram



8 Configuration

8.1 Application Configuration

Field	Values	Remark
MinWithDraw	50.000	
MaxWithDraw	10.000.000	
Number Record per Page	5	

8.2 System Configuration

Field	Values	Remark
Date format	dd/MM/yyyy	
Time format	hh:mm:ss	
Format money	##,###,###.00	

9 Packaging and Deployment – HuyVQ4

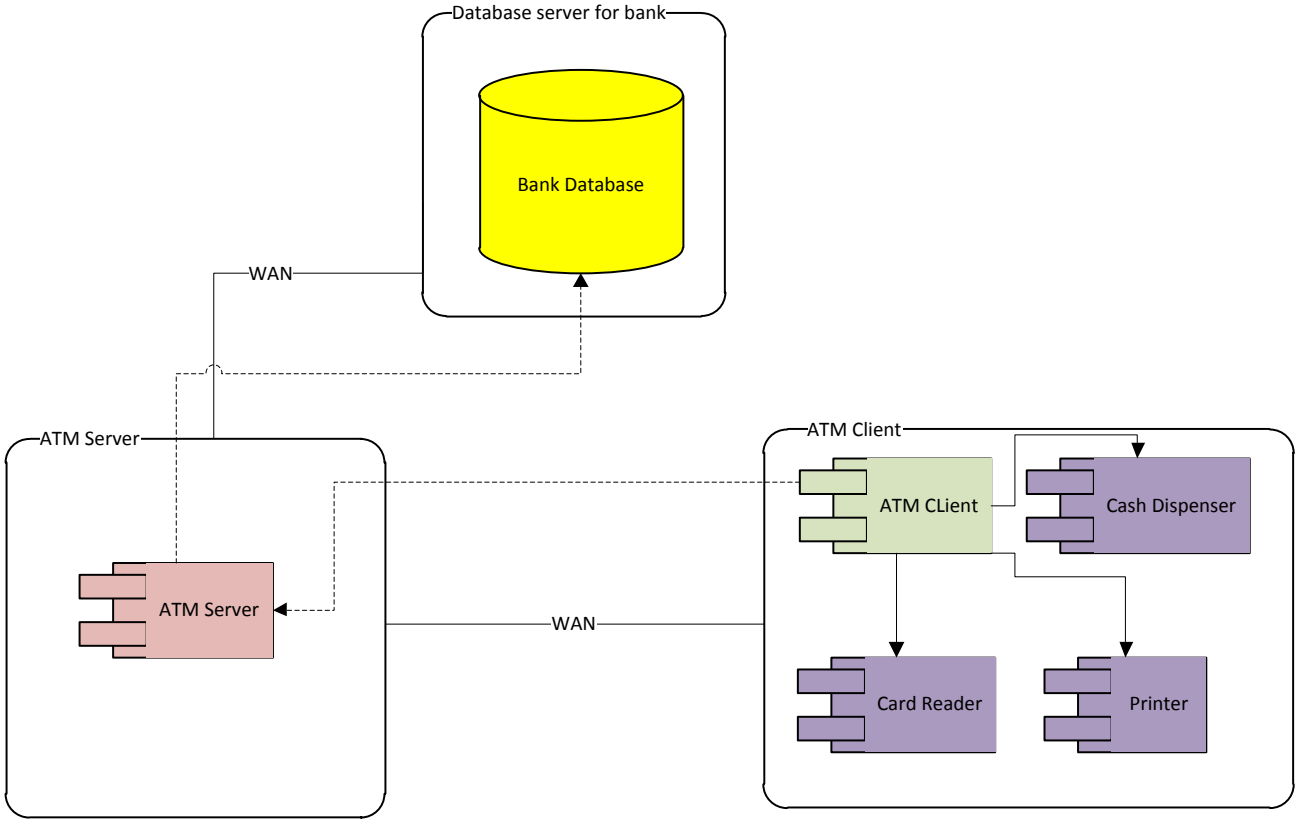


Figure 5.1:Deployment diagram

10 Appendix

10.1 Micrsoft Enterprise library