Online Banking System

system analysis and design report

Introduction:

This is a mobile application which will allow users to send or receive money for several purpose through the internet anytime and anywhere. Online banking is a new technology for our current generation. We have several systems and applications which provides us Online Banking solution. But still we have some ideas and real-life problems which could be a part of Online Banking.

So that we came up with this concept. In this application we have extended the features and added more functionalities to make Online Banking easier, secured and more efficient. And the features will help some other systems to interact with people about financial matters.

Features:

1. **Balance Transfer:** User can send money to another user
2. **Lend Money:** User can lend money to another user. Which will be refunded by the system to money lender in chosen time
3. **Donation Management System:** A system that will manage donation funds created by a user. User can also pay donation to any funds
4. **Cash Out:** User can get real cash from registered agents
5. **Mobile Recharge:** User can recharge his mobile

6. **Make Payment:** User can make payment to any registered shop
7. **Pay bill:** User can pay utility bills (Gas, Electricity, Phone, Internet)
8. **Pay toll:** User can pay toll while traveling

Benchmark Study:

We have chosen two applications to benchmark with this project:

1. Bkash
2. NexusPay

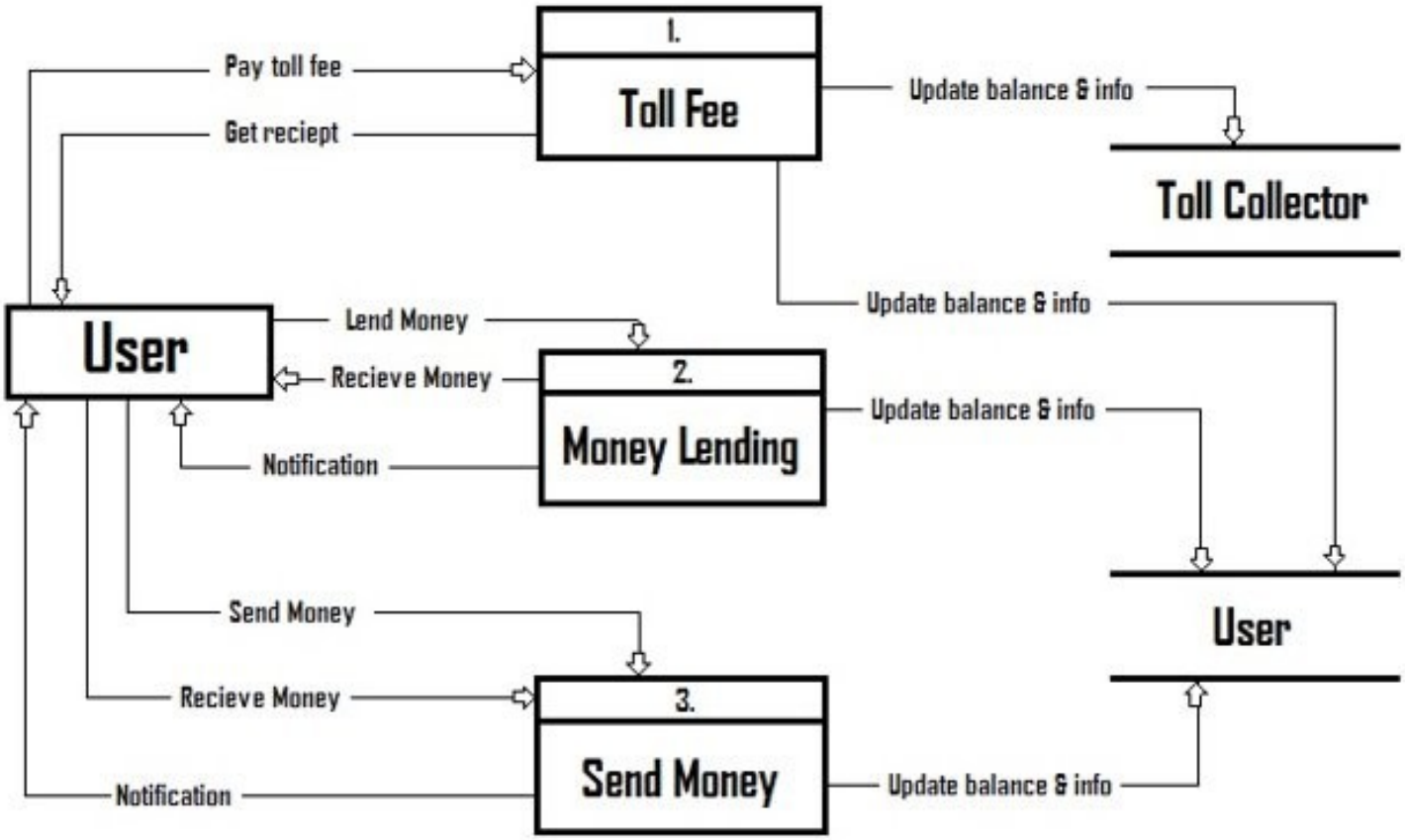
Differences & new:

1. Money Lending, Donation management system and Pay Toll feature is totally new. Doesn’t exist in other banking applications.
2. In Balance Transfer feature the user can get the recipients number from another using QR scanner. For avoiding mistakes
3. For Mobile Recharge feature the user must select the operator name. But in our application system will recognize the operator name by analyzing the mobile number
4. User will able to make a transaction passing only on activity(page) which will consume users time.
5. Statements are more informative and easier to understand than other applications.

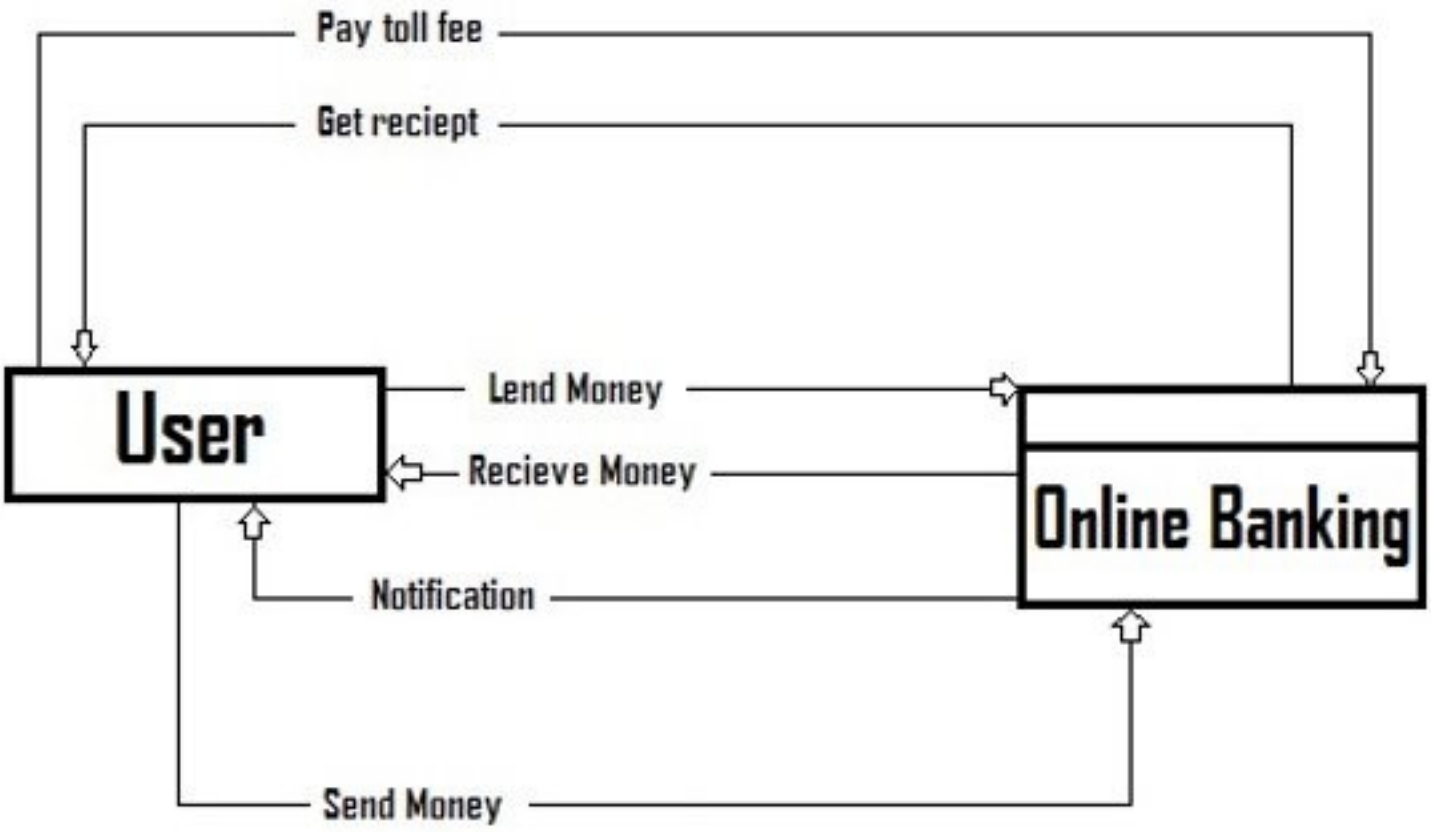
6. A search option added for Pay Toll to find out the toll booth.
7. More user friendly and simple UI designed

System Design:

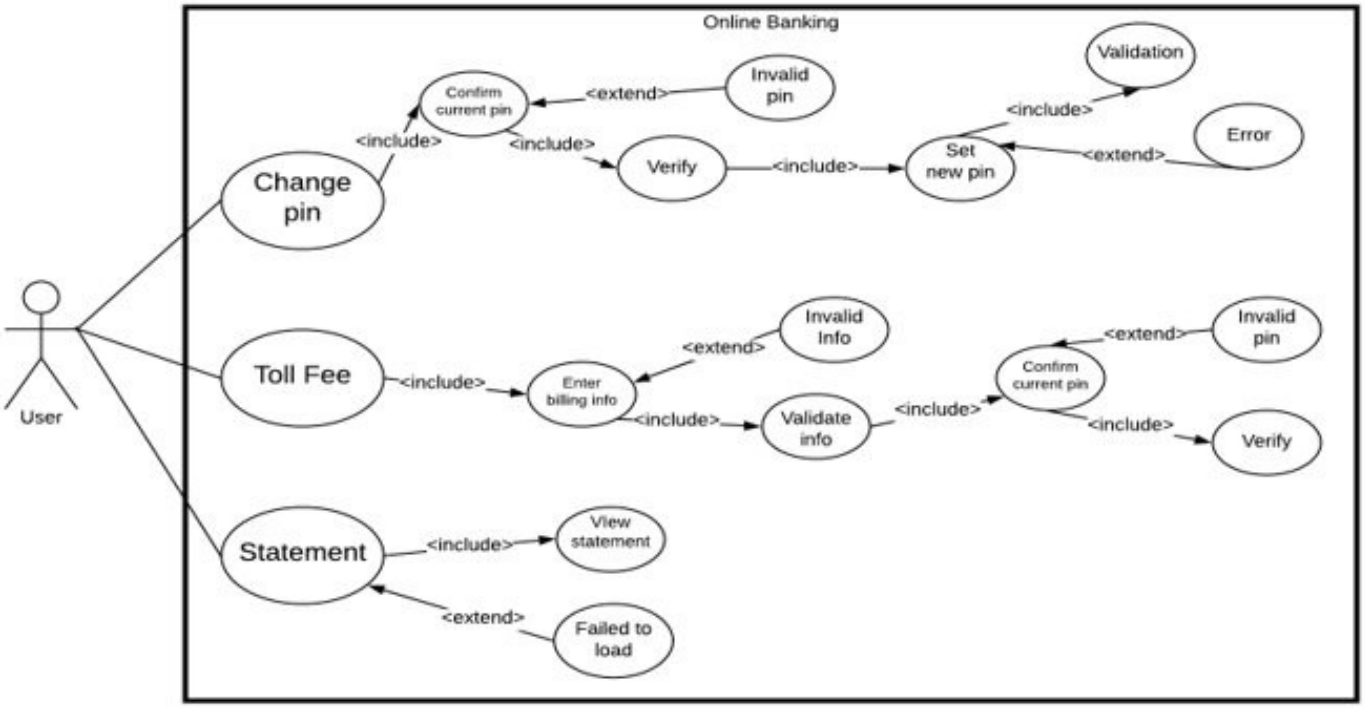
Data Flow Diagram:



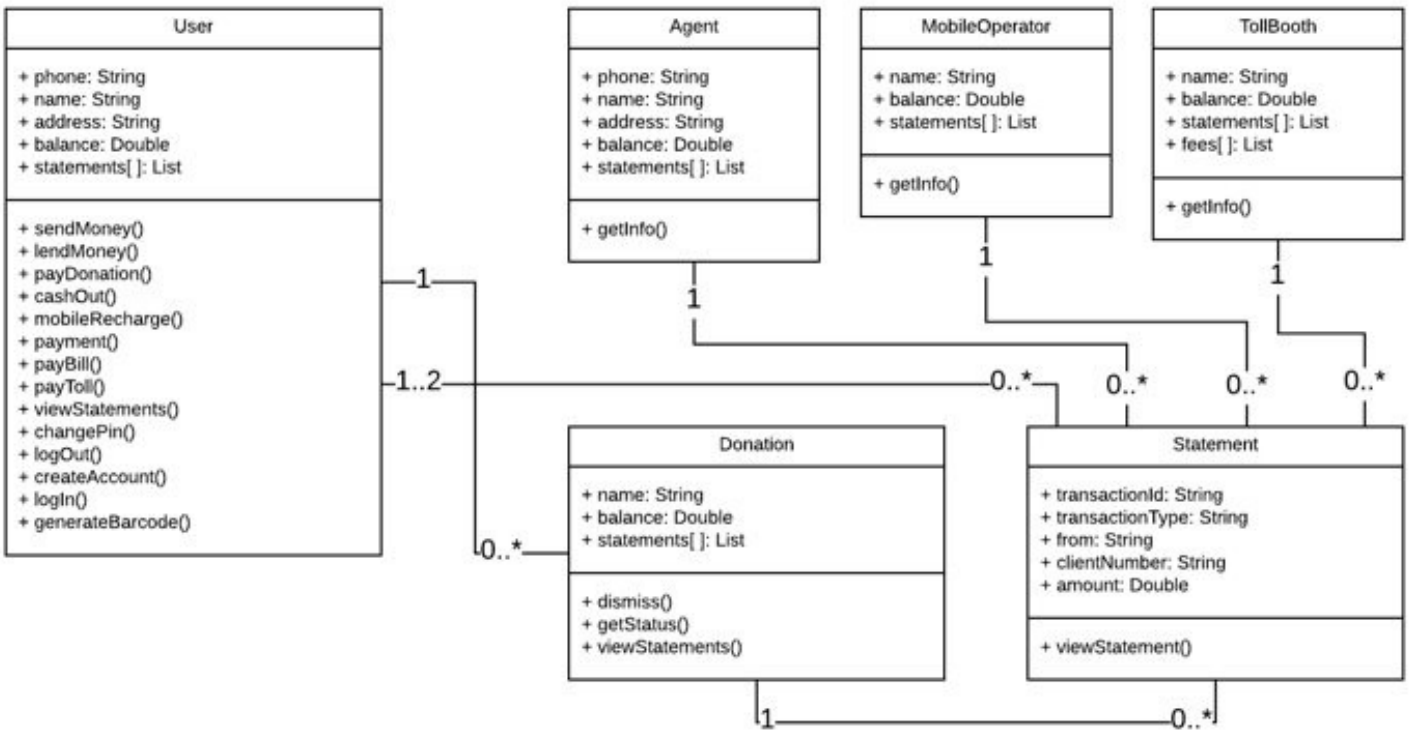
Context Diagram:



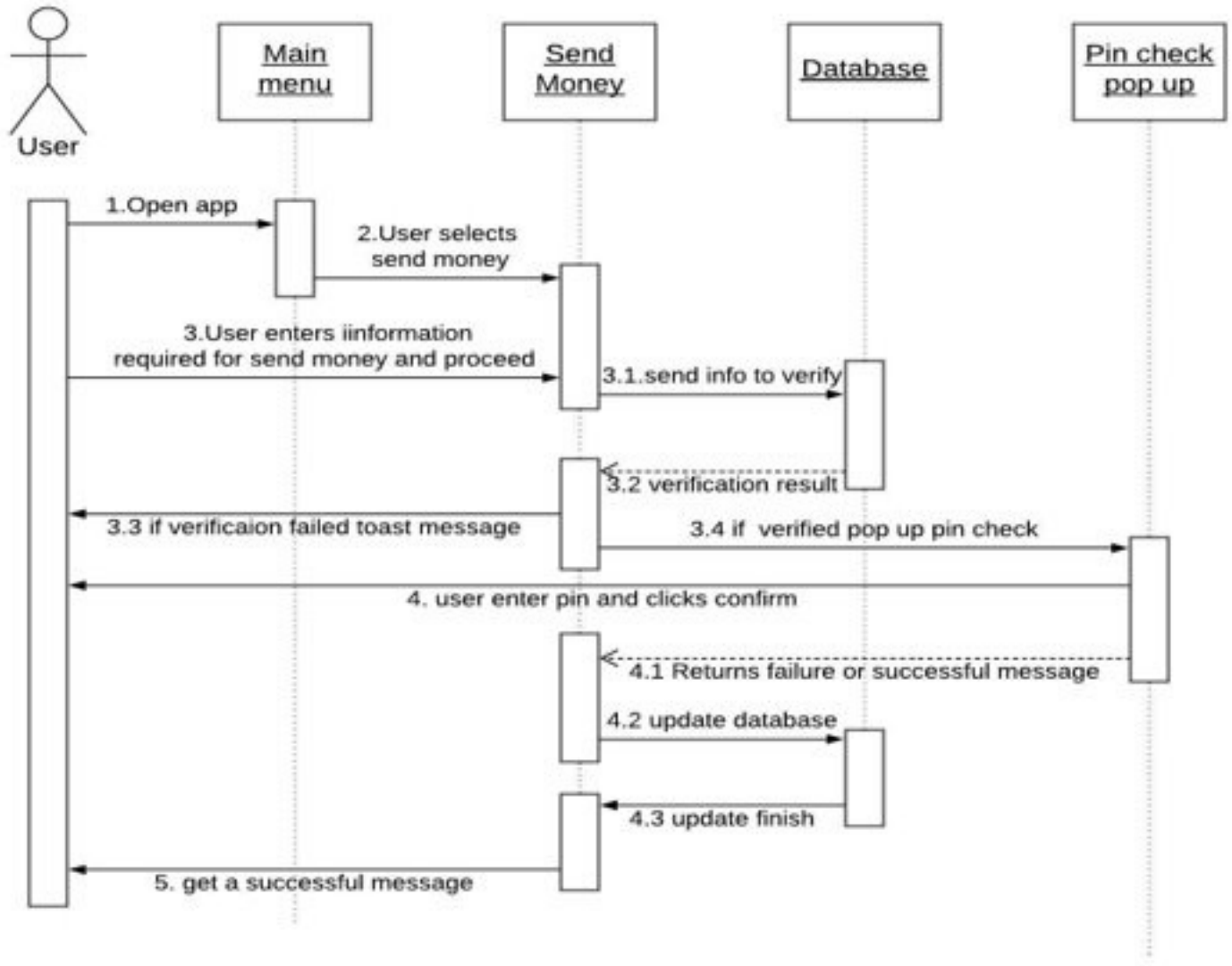
Use Case Diagram:



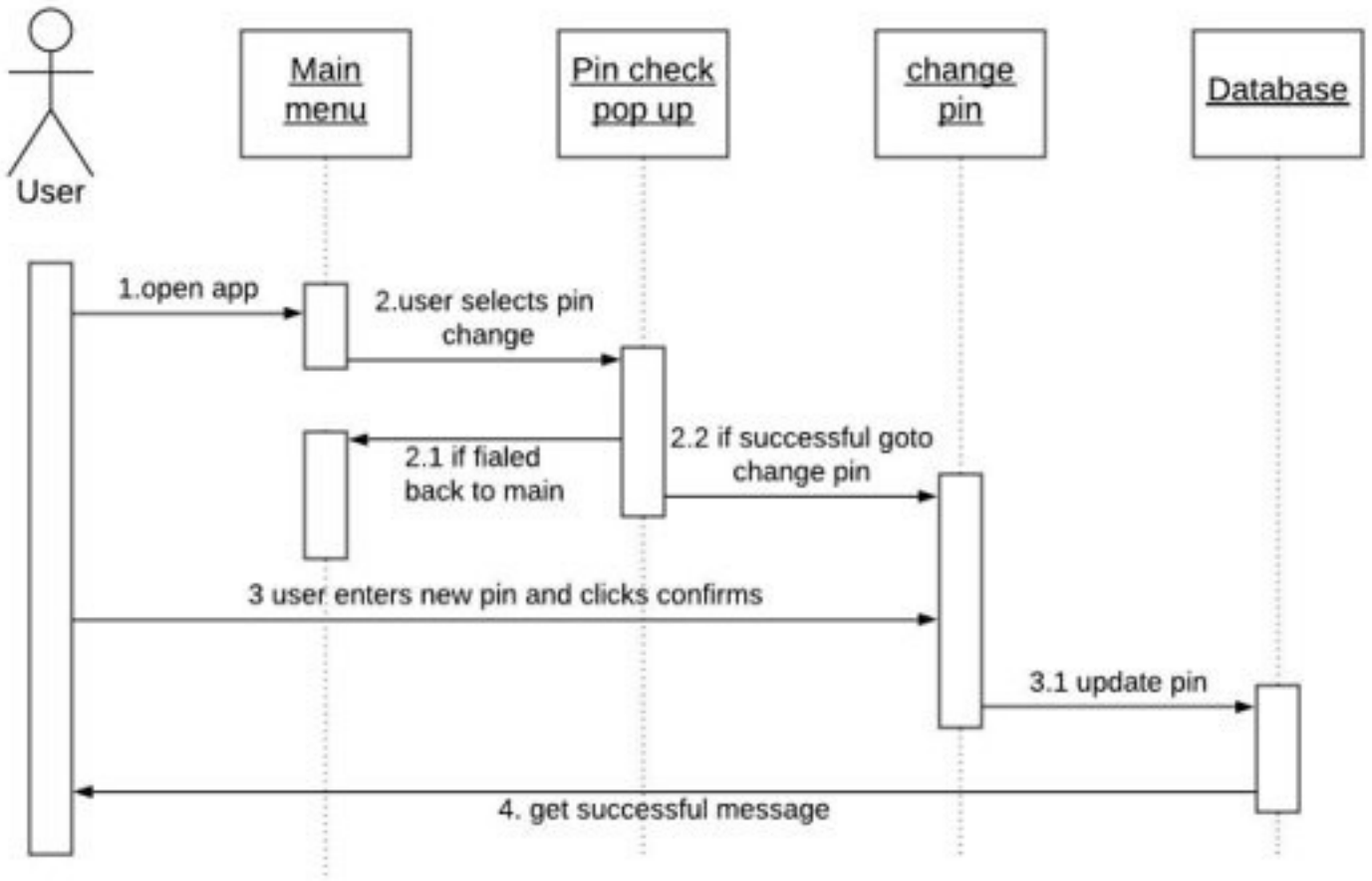
Class Diagram:



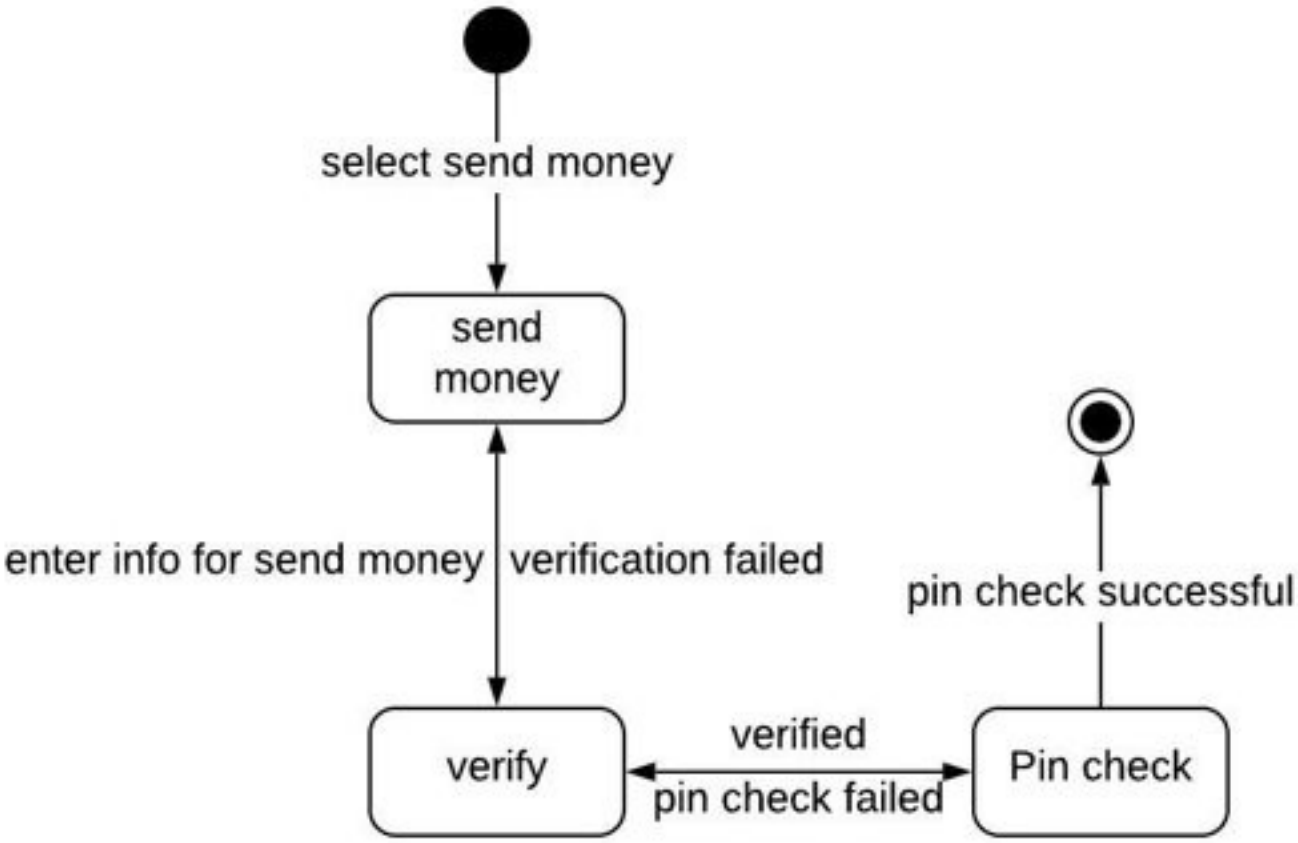
Sequence Diagram (Send Money):



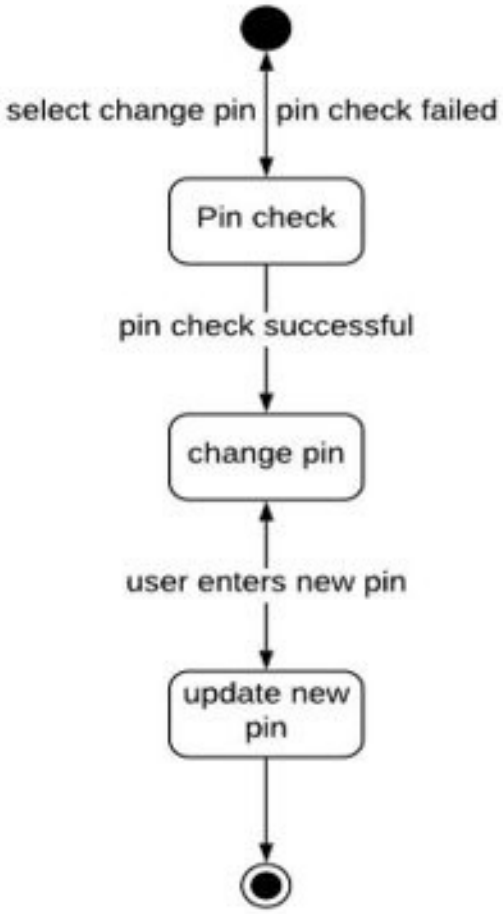
Sequence Diagram (Change Pin):



State Diagram (Send Money):


select send money
send money
enter info for send money
verification failed
pin check successful
verify
verified
pin check failed
Pin check

State Diagram (Change Pin):



Project Implementation:

Android Studio: To implement this application we are using Android Studio Which is provided by IntelliJ IDEA and totally free
Kotlin: To implement backend code we are using Kotlin which more efficient and easier to code than the other OOP languages
XML: To design the user interface we have to use XML in Android Studio
Firebase: For the database and authentication system we are using Firebase. It will help us to build the application faster, without managing infrastructure

SWOT Analysis:

Strength:

1. Using Android Studio we can easily develop the android application
2. Using Firebase Database to store data for user and other entities
3. Using Firebase Authentication system, we can implement features for register and login with phone verification
4. Chosen tools are free to use
5. Chosen tools are provided by google. So, the database, accounts and other information's will be secured by google
6. Five active developers will be working for the project

7. Using Git and GitHub which is free and helps to share project repositories easily
8. Have enough hardware support

Weakness:

1. Limited Firebase storage for free use
2. Using low specification PC’s implementation will be slower
3. No expert UI Designer available
4. Have to complete implementation in a short time
5. Working with new tools

Opportunities:

1. Business will grow by making partnership with Mobile Operators
2. Business will also support government finance through Pay Toll and Pay bill
3. Being introduce Android Studio and Firebase API
4. Simple design and extended features will make the application more popular

Threats:

1. As a banking application it’s a risk using third party database
2. As the user grows, we have to invest more on Firebase

Conclusion:

This project is a banking system so we have added more security than any other state-of-art mobile application. To complete each transaction user must pass provide the PIN. And user must authenticate by verifying codes sent to his phone. In every sign in, user have to verify a code.

Every user may not have the latest version of Android OS. So that we have made this application compatible for some other earlier versions.

In User Interface we have used dark colors so that the user feels comfortable using this application. We have added effects and progress bars to make the actions easy to understand.

To avoid mistake we have used barcode scanner and search options. And we have to include a barcode generator in this application.

A notification system will be implemented using Firebase cloud messaging to send notification even when the application is closed or running in background.