TON DUC THANG UNIVERSITY

Faculty of Information Technology

Course: Mobile Apps Development

Final Project

Overview

In era of Technology 4.0, banks and financial firms must provide clients with a convenient mechanism to perform all financial activities with ease. One method is e-banking in which the clients can operate and interact with the banks or financial firms via Web applications. The other method is to provide a banking app on mobile devices which are available for everyone and accessible everywhere. Using the mobile app, the clients do not need to go to ATM machines to withdraw the money. They can transfer the money to other people anytime without going to the banks and talking with the bank officers.

In Vietnam, all the banks such as Vietcombank, BIDV and OCB have provided the mobile apps for their customers. The customers can download the apps from Google Play or Apple stores and install them on their mobile devices. The banks only need to provide the initial setup for the accounts. Afterwards, the customers can perform all banking activities on their own.

In this project, you will develop a mobile banking app to boost the operations of your beloved bank and improve their customers' experience. You can name your banks and your apps with any name of preferences.

Business Requirements

The app should provide the following main features:

1. **User profiles:** The app should support two types of users: bank customers and bank officers. Two kinds of users should be provided different interfaces and permissions to perform different operations with the bank. The bank officers should be able to create accounts for customers and have permissions to modify customers' data upon customers' requests. The customers can view their banking information and modify them.

2. **Security requirements:** The app should provide login screen to allow the users to login to the system. The system should apply eKYC (Electronic Know Your Customer) to identify the customers and users. The bank officers can support customers to provide identification information by biometric data. For example, the customers can be asked to scan their faces and upload the pictures to the system. The image will be used to verify them when performing any banking activities with high values. All the transactions must pass two-factor authentication (2FA) to be persisted in the system. For example, to perform a transaction, the users need to provide OTP (one time password) to verify the identification.
3. **Account management:** The customers should be able to view information of their accounts. There are three possible types of accounts: checking, saving and mortgage. For each type of account, the customers should be provided a different view of the information.
    - They can view the balance of checking, saving accounts.
    - The customers can view profitable rates and profits per month of saving accounts.
    - The banking officers can modify the profitable rates according to the banks' policies.
    - The users can view the amount of money they need to pay each month or each two weeks for their mortgage accounts.
    - The users can view the transactional history of their accounts.
    - The users can deposit (add money) or withdraw from their accounts.
4. **Transaction management:** The users can perform the banking transactions following security requirements in section 2. The system should verify if a transaction is allowed and valid before persisting it in the database. The users should be able to perform the money transfers to other accounts in the same bank or to other accounts of different banks. The system should be integrated with payment service such as VNPay or Stripe.
5. **Utilities:** The app should provide the following utilities for the users:
    - Pay for electricity, water bills.
    - Deposit (add money) to their phone account.
    - Buy flight tickets, movie tickets, book hotel rooms or pay for products on ecommerce platform.
6. **Navigation:** The users should be able to locate their location. The app provides the view of users in the map and the locations of all nearby bank offices. The app provides intelligent recommendation of the shortest path to walk to the nearest bank office.

Technical Requirements

1. The project should be conducted by a team of 2-3 members. The team should develop an Android app to accomplish all requirements in business requirement section.

2. The system should store all data in a database. It could be SQLite database on the device. But it is preferred that the app should perform with the database stored on Cloud computing service such as Google Firebase.
3. The app should be deployed on Google App Store. Any user can download the app, install and use it on his/her own smart phone.
4. The team should provide a project report with following information:
    - Analysis and Design: explanation for software development principles, patterns and practices being applied. Include all class diagrams, entity-relationship database diagrams, use cases, and solution diagrams for the components, infrastructure design if any.

    - Implementation: explanation for the code structure, technologies used in the project.
    - User Interface: present all functionalities of your app.
5. Provide a demo video to show all nice features of your app.