

Online ATM System: Part I
CMPE131: Introduction to Software Engineering
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Team 1

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Project Requirement Document

Problem Introduction

This project is about creating an online banking system that helps beginner engineering students apply their knowledge in the end-to-end software development process. This project requires a web-based application server to handle normal bank transaction requests. Indeed, after the customer registers on the online banking website, they can perform any other regular banking activity, such as opening or closing the banking accounts, depositing checks electronically, and transferring the money from one account to another account. In the situation that the customer would like to withdraw cash, the website will display a message which tells the customers to go to a real ATM machine to withdraw money by using the same username and password or PIN that they use on the website. Also, the project requires the team to develop an online banking website that allows the customers to access it using different web browsers. Figure 1 is the online banking diagram.

Features of Proposed Solution

Open new account

The customer needs to register with an email, username, password in order to create an account. Once the customer has registered, they will need to log in to access their account. They should also be able to logout.

Close existing account

A user can close their bank account if the account is empty. If they try to close it with an existing balance, they should be prompted to make a withdrawal or a transfer. Closing the account should delete the user's login (email, username, password, PIN) and any other associated information.

Deposit checks using images

When a customer needs to deposit a check via the web, the webpage must be able to accept the images. In order to deposit a check, the customers need to take a picture of the check and submit it to the system. The system is also able to verify and validate the completeness and accuracy of the checks and verify that the check has not been used already. The user will specify the account number, routing number, check number in order to deposit the check to his/her account. The system allows the customers to verify their deposit amount before finishing the transaction.

Transfer money between accounts

A customer can transfer money between accounts by specifying the two account numbers and selecting the amount needed to go in. The transaction could be limited if the transfer amount is greater than the current balance in the customer account.

ATM Simulator

The screen the customer looks at is similar to an ATM screen. The user will use their username and login with their password or PIN. Once they have logged in, the user can check the balance or withdraw cash. Withdrawals cannot be more than what the customer has in their account.

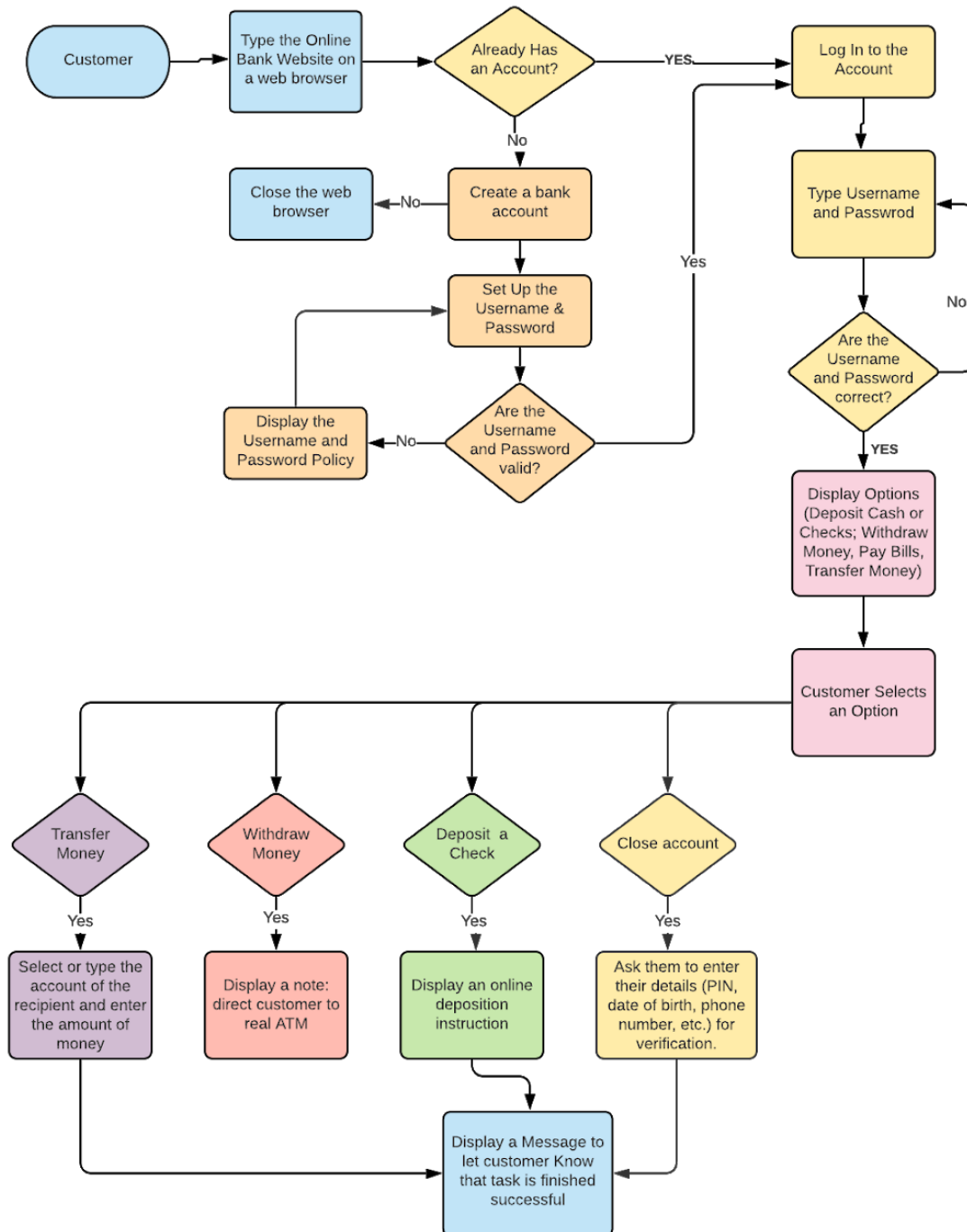


Figure 1: Online Bank Flow Chart

Architecture / High-level Design

Figure 2 describes the logical structures and relationships of all the fundamental components within the system.

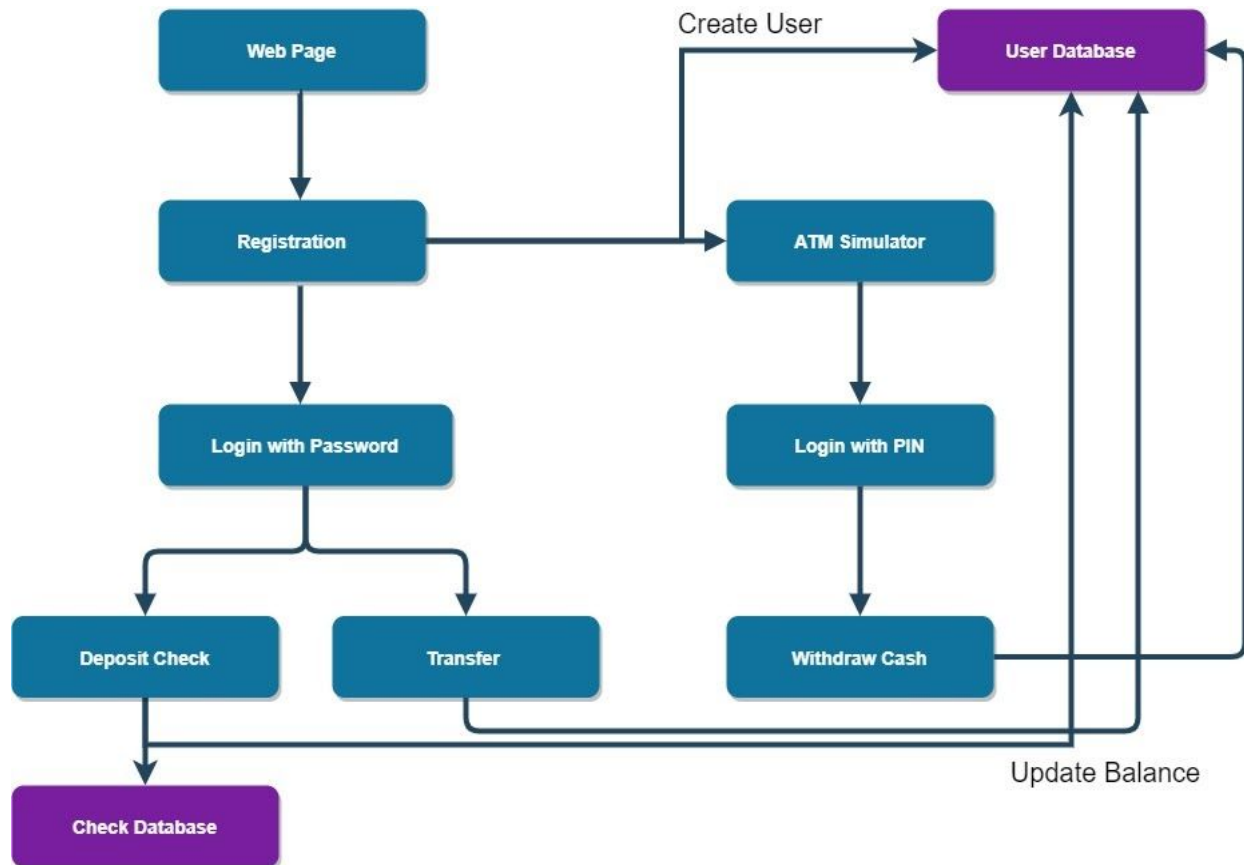


Figure 2: Component Architecture Diagram

Table 1 consists of all components in the online ATM system as well as descriptive information for each of them.

Table 1: Component Design and Descriptions

Component	Description
Registration	Usage of MySQL user database to store user information.
Deposit Check	User interface on the website that allows a user to submit an image and has a form for check information. Sends the image and information to check the database. Deposit check into the account of the user who submitted the check and withdraw money from the corresponding account number on the check.
Check Database	Contains information about the checks that have been submitted. The purpose of this database is to verify that the user does not repeatedly submit the same check information.
Deposit	Places money into account when given an account number and an amount
Withdrawal	Retrieves money from an account when given an account number and an amount
Transfer	Calls deposit and withdrawal function to move money between different accounts. Verify information from the user database to check if there is enough money.
Login	Verifies user account. Compares login information to user information in MySQL database. This component directs to the homepage upon successful login entry.
User Database	MySQL database which stores user login information and account information.
ATM Screen	Interacts with the user database to allow login. Users can deposit or withdraw money.

Tools

MEAN (MongoDB, ExpressJS, AngularJS, NodeJS)