

Testudo Bank Checking and Savings Account Feature

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Problem Statement

Customers of Testudo Bank are currently limited in managing their saving/cash deposits because Testudo Bank does not provide a way to compartmentalize and separate their cash balance/deposits. Customers would therefore benefit from a Testudo Bank feature that enables them to divide up their money in some way.

This service would encourage customers to use Testudo Bank because it gives customers more flexibility in how they can store their money. Such a feature also encourages customers to think more critically about where they put their money, and how much money they would like to keep saved.

Solution Requirements

- Customers should be able to divide up their money in some way
- The new feature must include more incentives for customers to continue to use Testudo Bank and save their money.
- Customers should be able to transfer their money between the different places the money is divided into
- The feature should encourage customers to increase their financial literacy and be more cognizant of how they maintain their finances.

Solutions Considered

Unlimited Checking Account Approach

This approach replaces the current “balance” a customer can have with instead multiple balances that correspond to multiple checking accounts.

Single Checking account and Single Savings account

This approach will allow for customers to choose to deposit cash into either their checking or savings account. One checking and one savings account will be available for customer use. The checking account has a functionality similar to the already existing balance functionality, whereas the savings account will have a yearly 4% interest rate. In addition, transfers can only be made from the checking account to the savings account.

Pro/Con of all approaches considered:

Unlimited Checking Account Approach

Pros:

- Existing pages and forms are minimally changed. This will keep the customer experience the same as what they are already familiar with.
- All accounts have the same characteristics and therefore it is simple to understand how they work (learning curve not very high)
- Will not be too different from the current functionality of Testudo Bank, except that instead of one total balance, there are multiple balances

Cons:

- Every account has the same characteristics, and therefore there might not be a lot of incentive to put money in one account versus another
- Without an incentive to use one account over another, this might run the risk of having customers decide to continue to use a single account to avoid confusion.

Single Checking account and Single Savings account

Pros:

- With a savings and checkings account, Testudo Bank will become more similar to the traditional banks customers have previously used, and therefore makes the transition to using Testudo Bank more seamless

- The 4% interest rate on the savings account will encourage customers to use Testudo Bank and the savings account it provides.
- The fact that transfers can only be made from the checking account to savings account (and not vice versa) will increase financial literacy because people will be forced to think more critically about where they are putting their money/how they are choosing to save their money.
- The different characteristics between the savings and checking account will make it more intuitive to customers on how to use the two types of accounts and their different functions.

Cons:

- Existing pages and forms may have to change a lot
- Deposit form (/deposit) will now need to include a checking and savings account option to deposit into
- Withdraw form (/withdraw) will need to include a checking and savings account to withdraw money from
- Transfer form (/transfer) needs to include options to transfer money from checking account to savings account
- The MySQL DB Schema will need to change to account for the new savings and checking account for each customer, and also to include the transactions involving the checking and savings accounts (both between different customers, and for a single customer - for example, for transfers from a checking to savings account for the same customer).

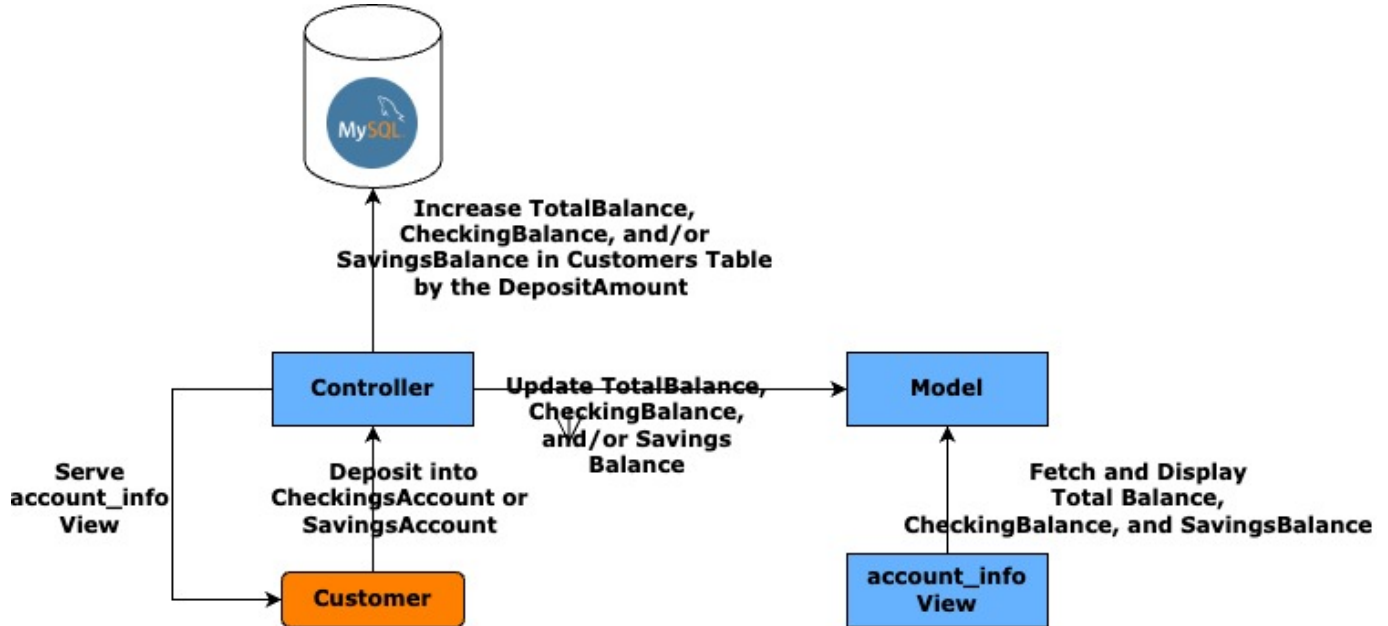
Proposed Solution

The proposed system is a **single checking and single savings account** feature that allows customers to deposit and withdraw money from two different types of accounts, both with their individual characteristics. This solution was mainly chosen because it will allow Testudo Bank to mirror the traditional banking system more, which allows for a seamless transition from using a traditional bank to using Testudo Bank. In addition, the interest the savings account can accrue will make using the savings account functionality more appealing to customers.

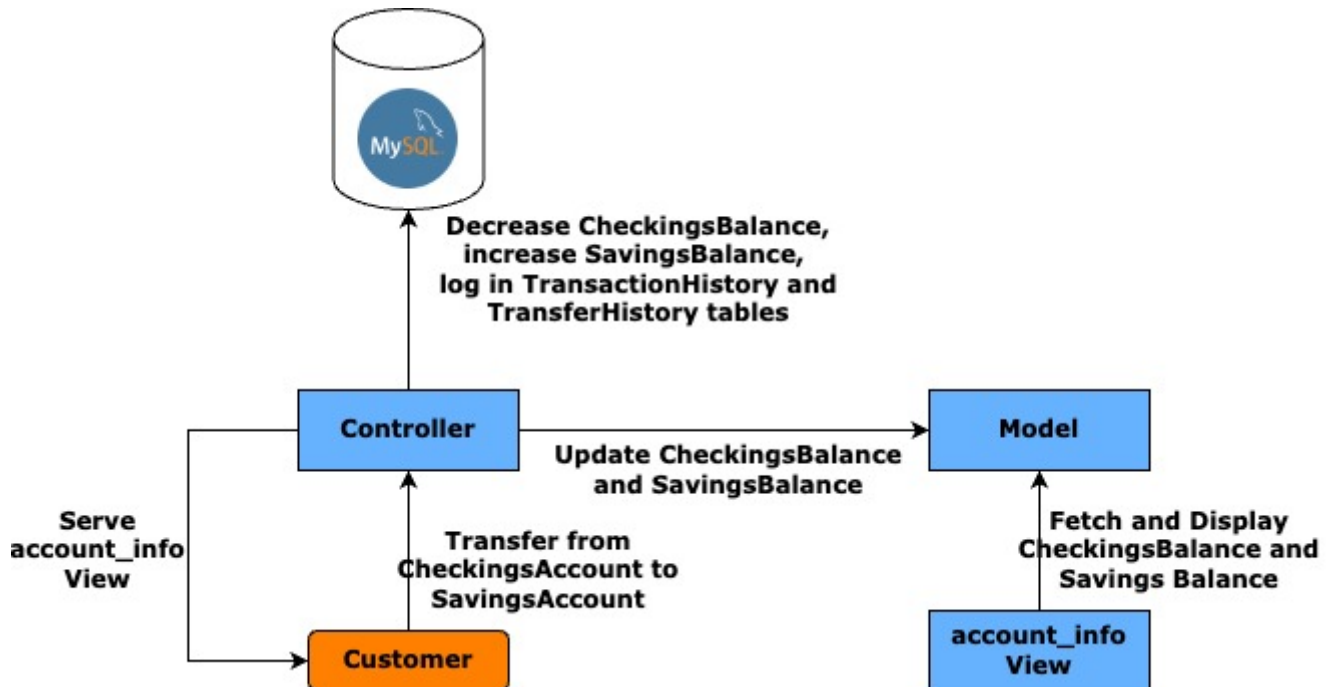
Technical Architecture

MVC Logic Diagrams

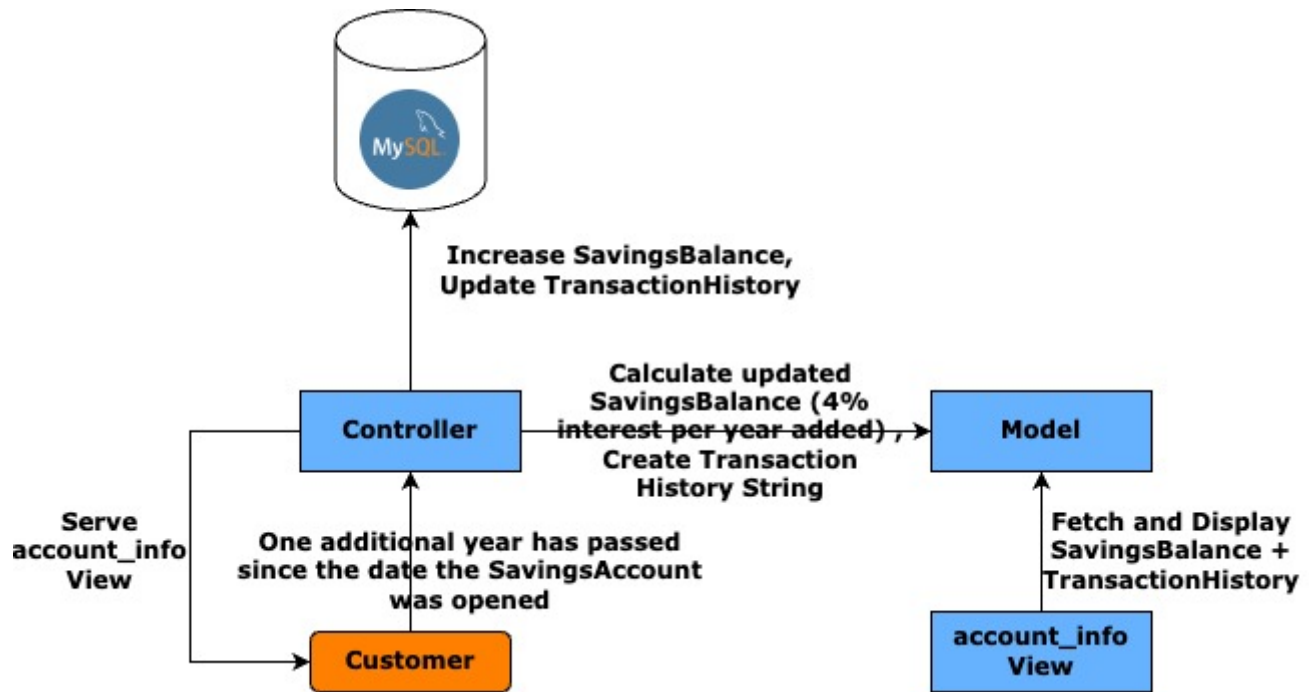
Deposit into Checking or Savings Account



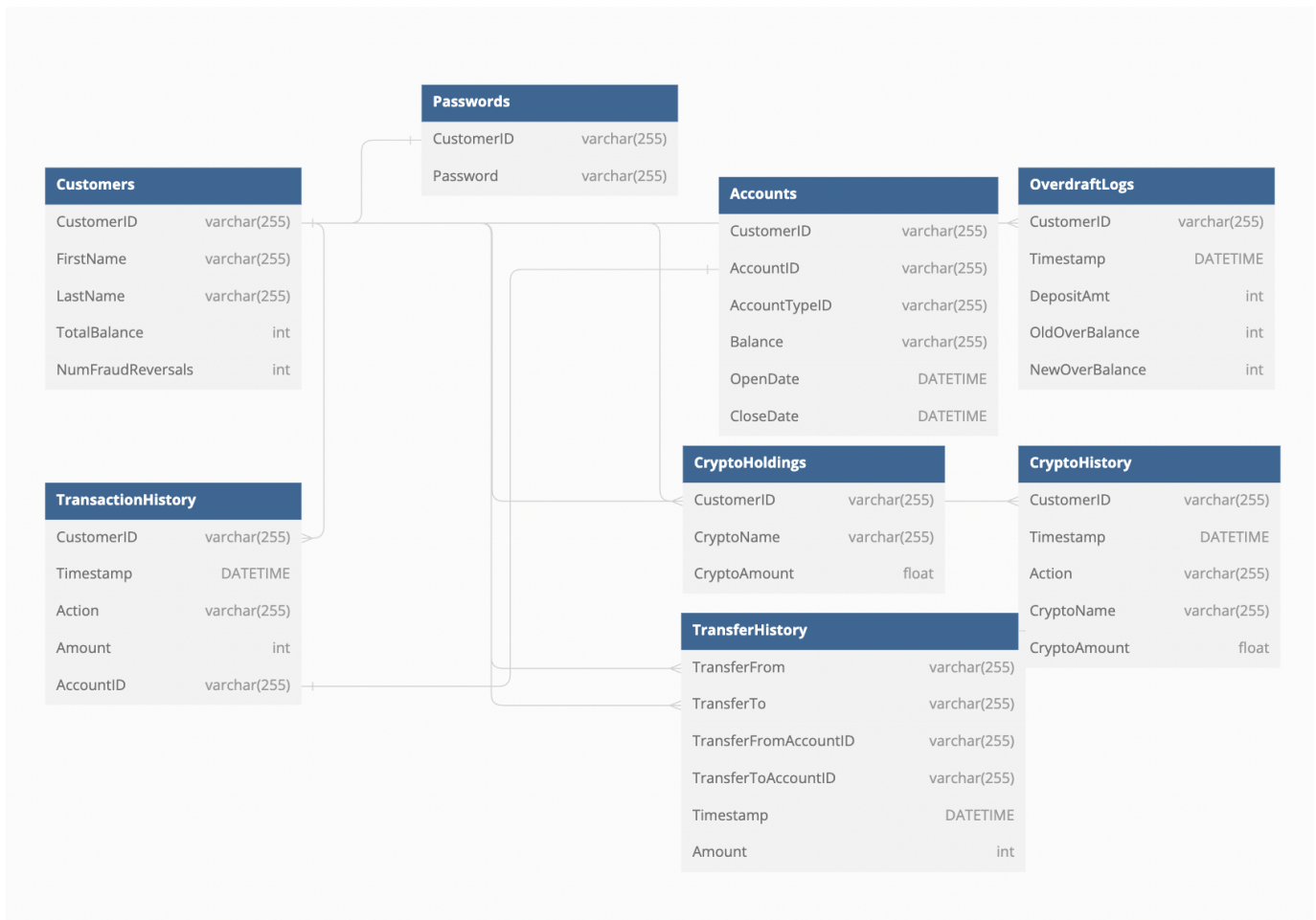
Transfer from Checking Account to Savings Account



Interest applied Every Year on Savings Account



MySQL DB Schema



DB Schema Notes

- Accounts Table (new):
 - The Primary Key for the new Accounts Table is "AccountID".
 - CustomerID is not a primary key in the Accounts Table since multiple Accounts can have the same CustomerID/correspond to the same customer. (since each customer can/will have more than one account)
 - Includes a customerID to show the customer the account is associated with, and AccountID to give it a unique identifier, as well as an AccountTypeID (checking, savings, etc), an open date, and a closed date
 - One-to-many relationship : Where each customer can have many accounts (in particular, at this time each customer will have two accounts: a Savings and a Checkings account)
 - The OpenDate of the account will be particularly important for the savings account, as we need to know this so that interest can be added every year since the account has been opened to the account's Balance.
- TransactionHistory table (updated):

- Will now have an AccountID field to show what account the money was withdrawn from/added to.
- Customers Table (updated):
 - The Customers table will now have a “TotalBalance” field representing the sum of all money in all accounts (in particular, the sum of the checking and savings account), rather than a simple “Balance” field
- TransferHistory table (updated):
 - The TransferHistory table will now include two more fields: TransferFromAccountID and TransferToAccountID, representing the respective account ids for the accounts that money was transferred from/to. This is especially important because it helps track transfers from the Checking accounts to Savings accounts of a single customer.
 - Note: A new transaction table was not created specifically for checking-savings transfers in order to maintain the previous DB Schema as much as possible (in the interest of conformity).
- Note: The database structure was changed to include an Accounts table, rather than just adding the Checking Account and Savings Account information to the Customers table to allow for the possibility of having both more types of accounts and more accounts per person in future iterations of Testudo Bank.