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Homework #1

Standard Account Class

The standard account class serves as the main parent class towards the other account classes. The Standard Account holds 3 properties, the account number (int), credit limit (double), and the balance (double). The constructor initiates the account number with the given argument and the credit limit with the given argument. We had to check if the credit limit argument was positive. If it was positive, then the credit limit is set to zero. Otherwise, we set it to the argument. Lastly, we set the balance to zero. The deposit method is simple, just add the given argument amount towards the total balance of the account. For the withdrawal method: We need to find out the maximum number that is possible to withdraw from the account. This number is found by taking the current balance and subtracting it by the credit limit, which would give us the total number possible to withdraw. Then if the argument amount was larger than the maximum, then we withdraw the maximum, otherwise, we withdraw the argument amount. Get Current Balance is simple, just return the balance. Get Account Number is simple, just return the account number.

Basic Account

The basic account was implemented using the standard account as its parent or superclass. Therefore, we only needed to override the withdrawal method. To do that, we had to check if the argument amount given was larger than the accounts withdrawal limit and if the account had enough balance. Thus, we first check if the amount is larger than the withdrawal limit and set the maximum to the limit if it is larger, otherwise set the maximum to the amount. Then we just check if there is enough balance and subtract it accordingly.

Premium Account

The premium account was also implemented using the standard account as its parent or superclass. Therefore, we really don't need to implement any methods. All we need to do is set the credit limit of our standard class to negative infinity and let the rest of the methods work normally.

Bank

To implement the bank class, we needed to instantiate an ArrayList that holds IAccount objects. So, we construct the bank class by simply creating an empty list that holds IAccounts. The Open Account method is simple, we just add the given argument account into the ArrayList. The Close Account method was implemented so that we first search for the account in the List given the account number integer. We use a for loop to search, and we create a Boolean value to notify when the account was found to break out of the for a loop. Lastly, we check the balance of the found account and delete it according to its balance by using the remove method in ArrayList. Get All Accounts method simply just returns our main list. Get All Accounts in Debt method uses a for loop to search through all the accounts and creates a new list that will add only accounts with negative balances and returns the list. Get All Accounts With Balance works similarly to Get All Accounts in Debt except uses the argument amount to add all accounts with a larger balance to the list which the method returns.