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Project 1: bank account

This Bank Account program is to allow user to manage their account in the bank.

The assumption here is that "User A in Bank B has a checking account with a balance X". One user can only have one account in one bank. However, they can have multiple accounts in different banks.

One user is represented by their SSN. one account in one bank is represented by the accountID in bank_name. user can access their account by their PIN attached to their accountID.

There are two main classes: Account and Bank.

The base class **Account** is used to deposit/withdraw money/check balance. Depending on the kind of account User A has, the subclass (Student,Senior,Regular) will have different interest rates for overdraw and minimum account balance.

The class **Bank** is used to manage account in the bank. Users can **add, remove, and check the account information** in the bank. **The balance information is not included in the class(Bank).**

Account:

1. Get Balance
2. Display Image(type of account image)
3. Deposit
4. Withdraw (can overdraw, but have different interest rates depending on the type of account and duration of loan)

Bank:

1. Add Account
    a. Check if the user has an account
2. Remove Account
3. Delete Account
4. Number of Account (won't be using in this program)

→ Global variable:

1. dictionary bank_account = {} #bank: accountID
2. dictionary bank_PIN = {} #bank: PIN
3. list list_bank = [] # a list of bank one SSN can have multiple banks
4. list list_accountID = []
5. bank_balance ={} #bank: balance

Restrictions:

1. SSN must be 9-digit
2. PIN must be 6-digit
3. In order to access the bank balance, the user must have a bank account.
4. The user is allowed to overdraw with the max of 5000 dollars. It will have different interest rates depending on the duration of loan.

How I finished the project

1. Created class (bank, account)
2. Created user interface

Challenges:

It is very difficult to create a class if you have not put enough thoughts into it. At first, I was thinking of creating 4 classes which are account_info, account_balance, bank_ino, customer. After I did 3 classes, I realized they were interrelated and overlap with each other. Then I sat down and draw a graph of what class attributes, instance attributes, methods I want each class have. Then I decided to create only two classes which are separate with each other in terms of information. Also, I would like to demonstrate my knowledge of class inheritance so I decided to create subclass (student, senior, regular) under the base class (account).

After creating these two classes, I started to create the user interface. Then I realized some minor mistakes and more importantly, the class attributes should be a global variable.

The user interface is to connect these two classes together which must be done through global variables. Then I moved the class attributes of bank to the global variable.

Now I realized I have not really used the power of the class(bank) I created, since one user can have multiple accounts in different banks. My program works for one bank. If the user would like to navigate through multiple banks, they need to rerun the program again, which is not ideal. I was hoping to add the features but due to the time limit, I wasn't able to achieve that.

This made me think: actually, the class python created is much more powerful than what we have used with that. This is definitely the reality. Python has a lot of features that we haven't used or may not even use it in the future. The creator built the functions for everyone, so we will never know maybe one day we would use them.