Bryan Zhao
Regina Zhou
Dr. Palacios
CS 105C
1 Dec 2023

Project 4 Design Doc

1. Describe your data structures and algorithms in a separate design document (it can be a text, pdf or MS Word file). Explain any data & functions you have in your classes or the main program which deserve mentioning. Make sure this document also has a proper header.

Main.cpp:

int main()

- Use if statement to check whether input file is valid
- Use pointer to Account class to create an account
- Use while loop and if statements to loop through input file and extract relevant information

Account* initAcc(ifstream* inputFile, char accountType)

- Use pointer to Account class to create an account
- Use if statement to determine the account type

Class Account:

virtual void deposit(double amount), virtual void withdraw(double amount), virtual void calcInt(), virtual double monthlyProc();

- They are set as virtual functions so that polymorphism could be achieved

Class Savings:

Savings(double initialBalance, double interestRate)

- Uses if statement to set status of account

void withdraw(double amount) override;

- Uses if statement to set status of account

void deposit(double amount) override;

- Uses if statement to set status of account

void monthlyProc() override;

- Uses if statement to set status of account

Class Checking :

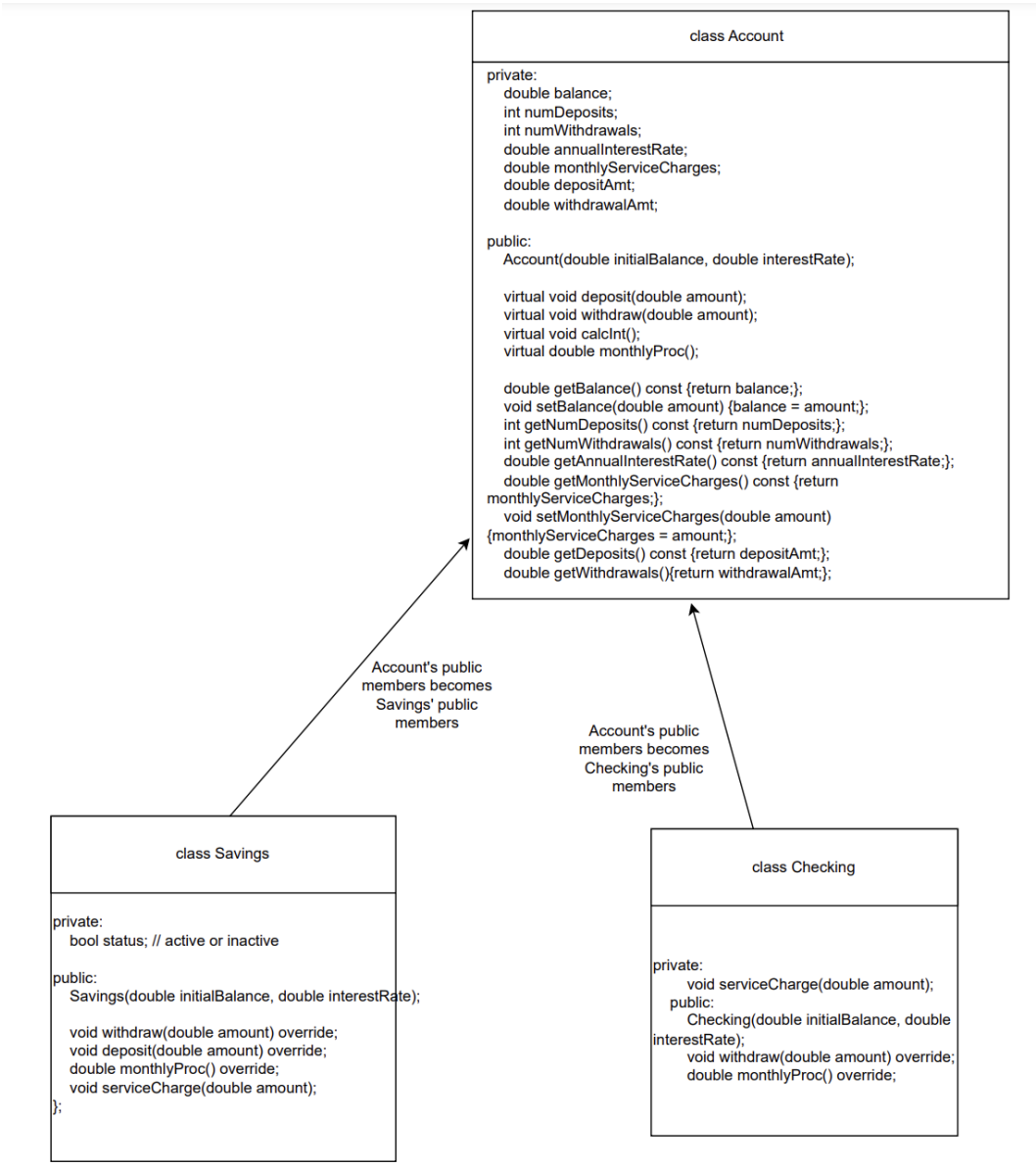
void withdraw(double amount) override;

- Use if statement to determine serve charge

2. Explain the design and implementation choices you made: Were there any other (reasonable) data & process implementations you could have used? If so, give one advantage and one disadvantage of the implementation you chose.

   We have created three different classes to represent accounts in general, the savings, and the checking accounts. We could implement them into one class, but one disadvantage would be it's hard to distinguish between the different accounts. But one disadvantage of our implementation is that it might be a little complicated to use.

3. Document the design of the class hierarchy by means of a UML class diagram, as shown in the lecture slides. Note the following diagramming and modeling tools, which are available online: http://staruml.io/ o https://app.diagrams.net/



4. Add instructions on how to compile and run the program on the GDC lab machines (remember to include your makefile).

   After typing makefile, do ./main to access it.