**Bear Bank - Project 1**

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CSC 232

**OOP Implementation** (*How was OOP used in this program?*)

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| --- | --- | --- |
| OOP Concept | How it was used | Where it is found |
| Inheritance | Inheritance was used in this program using the parent class BankAccount and the two child classes: Savings Account and Checking Account. The parent class contains functions that can and are used by the child classes. | BankAccount.h  CheckingAccount.h  SavingsAccount.h  (functions are inherited from the parent class and used within the child classes) |
| Encapsulation | Encapsulation was used in this program by bundling the data for a checking account, savings account, bank account, and their respective functions and properties within classes. | BankAccount.h  CheckingAccount.h  SavingsAccount.h  (These are then included in Bank.cpp) |
| Polymorphism | Polymorphism was usd in this program by the implementation of virtual functions that resolve to the most-derived version of the function that exists between the parent and child class. | BankAccount.h  CheckingAccount.h  SavingsAccount.h  (BankAccount.h includes virtual functions for both deposit and withdraw that are overridden by the child class functions under the same name) |
| Abstraction | Abstraction was utilized in the project by using classes and header files. It helped aid program structure, organization, and avoided code duplication. We also are able to hide any unnecessary information from the user, and only show what they ask for/what we wish to show. | BankAccount.h (member variables and functions)  SavingsAccount.h (member variables and functions)  CheckingsAccount.h (member variables and functions)  Bank.cpp (header files) |

OOP(Object Oriented Programing) was critical to the completion of this project and its implementation throughout the program allowed for easy access to elements from the various classes to Bank.cpp. The organizational ability of OOP was easy to work with once the groundwork was laid out and the header files were completed. This was a very effective and efficient pathway for our group to complete this project.

**Group Member Contribution**

|  |  |  |
| --- | --- | --- |
| Name | Completion (%) | Details |
| David Harper | 36% | Worked on: creating savings and checking account classes, creating login, open account, main, loadFile, and reloadFile, functions in Bank.cpp. Commented code for Checking Account class and Main. Checked and edited code throughout. Helped the group by being present at all meetings, easily communicating changes, and providing significant contributions. |
| Ethan Dawley | 32% | Worked on: SavingsAccount.h and CheckingAccount.h classes. Implemented Interest rate to classes and the Bank.cpp. Worked on Service Charge concept and implementation. Helped error check and create login function, open account function, reLoadFile, and main. Created constructors for child classes.  Commented code for Savings Account class.  Checked and edited code throughout. Helped the group by being present at all meetings, easily communicating changes, and providing significant contributions. |
| Christian Leslie | 32% | Worked on: creating BankAccount.h class. Worked on concepts and implementation for both Service Charge and Interest Rate. Created constructor for BankAccount.h. Helped error check and create loadFile, login, reLoadFile, main, and open account. Worked on the implementation of virtual functions in both the parent and child classes. Commented Code for BankAccount. Checked and edited code throughout. Helped the group by being present at all meetings, easily communicating changes, and providing significant contributions. |

All members contributed to what we believe to be a fair amount and worthy of the group grade on this project. We were all present for the meetings and contributed ideas and thoughts for many hours on end. We had a few problems with GitHub but we will provide a link to an active git repo. However it may not be entirely accurate to the work we all did. Some group members were able to commit changes at times where others were not so the changes are not accurate to the work the members did. Also most of the code was written while we were all together so sometimes it was easier for one person to complete the code while the others added their input and ideas or even wrote lines of code on paper. All that being said, this group agrees that all participants were active and relevant to the creation of this project and deserving of the group grade.

**GitHub Repository Link**

Below is the GitHub repository link for our project, the insights do show that all members were able to contribute even though the accuracy may be off. We were all still able to access and use github at least a few times each throughout the process. We made sure to comment and communicate our changes throughout and actively worked together to solve problems and keep up to date on the code. This was a learning experience for us all in GitHub but it was greatly beneficial.

<https://github.com/dahdave/CSC232_Project1.git>