Group 5

Final Project Phase 1 Report

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| Library | |
| Member Variables | Methods |
| (private) listOfLibrarians: ArrayList<Librarians>  ArrayList of all Librarians registered in the system. | (public) attemptLogin(String, String): Boolean  If the user is a registered user and enters their username and password correctly it will return true |
| (private) listOfStudents: ArrayList<Students>  ArrayList of all Students registered in the system | (public) checkInBook(Book, Student, Librarian): void  When a book is returned it will remove it from the listOfCurrentRentals. Additionally, it will remove it from the rentals array of the student returning the book. |
| (private) listOfBooks: ArrayList<Book>  ArrayList of all Books the library carries | (public) checkOutBook(Book, Student, Librarian): void  When a book is checked out it will add it to the listOfCurrentRentals. Additionally, it will add it to the rentals array of the student checking the book out. |
| (private) listOfCurrentRentals: ArrayList<Book>  ArrayList of all Books currently lent out by the library | (public) returnCurrentRentals(): ArrayList<Book>  Prints out a list of all current books lent out by the library. |

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| Book | |
| Member Variables | Methods |
| (private) currentReader: Student  Stores who currently has the book checked out | (public) available(): Boolean  If the book is not checked out it will return true, else false |
| (private) librarianRented: Librarian  Stores which librarian checked the book out | (public) getID(): int  Returns the ID of the book |
| (private) title: String  Stores the title of the book | (public) calculateReturnDate(): String  Calculates how long until the book is due to be returned |
| (private) description: String  Stores a description of the book | (public) calculateFees(double): double  Calculates how much a renter owes for returning a book late |
| (private) yearReleased: int  Stores what year the book was released |  |
| (private) bookID: int  Stores the ID of the book |  |
| (private): historyOfRenters: ArrayList<Student>  Stores the name of everyone who has checked out the book |  |
| (private): checkoutDate: String  Stores the date of when the book was checked out |  |
| (private): returnDate: String  Stores the date of when the book was returned |  |
| (private): overdraftFee: double  Stores how much the overdraft is for this book |  |

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| Student | |
| Member Variables | Methods |
| (private) rentals: Book[2]  Stores the students’ current checked out books | (private) encryptPassword(String): String  Encrypts the students’ password |
| (private) rentalHistory: ArrayList<Book>  Stores all books the student has checked out | (private) decryptPassword(String): String  Decrypts the students’ password |
| (private) username: String  Stores the students’ username | (public) getRentals(): Book[2]  Returns the students’ current checked out books |
| (private) password: String  Stores the students’ password |  |

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| Librarian | |
| Member Variables | Methods |
| (private) name: String  Stores the librarian | (private) encryptPassword(String): String  Encrypts the librarians’ password |
| (private) password: String | (private) decryptPassword(String): String  Decrypts the librarians’ password |
|  | (private) modifyBook(Book, Book): void  Add, delete, or change a book in the current system |
|  | (private) seeAllRentals(): ArrayList<Book>  Returns all the books currently checked out |

Class relationships:

Library will aggregate from the book class, librarian class, and student class because it contains an ArrayList of books, an ArrayList of librarians, and an ArrayList of students.

Book will aggregate from the student class and librarian class because historyOfRenters is an ArrayList of students and librarianRented is a librarian object.

Student aggregates from the book class because it contains an ArrayList of books.