Library management

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Introduction:

This assignment is meant to simulate a library management system which main usages are renting, returning, adding, removing and searching books.

This project includes five classes which “Library” is the most influential of them all.

Design and Implementation:

You can first log in as a default librarian (username and password = “admin”) and then can access to a librarian menu which can be used to sign up a new user or new librarian.

As a librarian you can change password of other librarians or users or even remove them.

I kept an array list of books, users and librarian (which are defined in the class “Library”) and I used the name (either username or name of a book) as an attribute to search for index of wanted object (the methods bookIndex, userIndex and librarianIndex), and if the methods return -1 it will mean that the username does not exist among the objects in those lists.

Each time a user logs out, it will be removed and added again in userList to make sure the user attributes are updated.

As a librarian if you choose to see information of users, books or librarians it will call the search functions that will result in printing the “toString” methods.

Bonus: exceptions are handled well, for example the program won’t let you borrow a book twice or return a book that you haven’t borrowed.

Testing and Evaluation:

An unexpected bug which I ran into was the problems with having nextLine() in loops, I had this bugs several times before and after searching about it several times, I didn’t know how to solve this problem so I changed all of “nextLine()”s to “next()”s, so you can’t include space in your string as an input.

I tested the code several time with different approaches and it worked fine.

Conclusion:

This program taught me a lot about OOP and how to deal with it, it also made me work with concepts like Array Lists and Hashmaps, I understand why OOP is so useful and it helped me a lot to keep my code organized.