LIBRARY SYSTEM

Group Members

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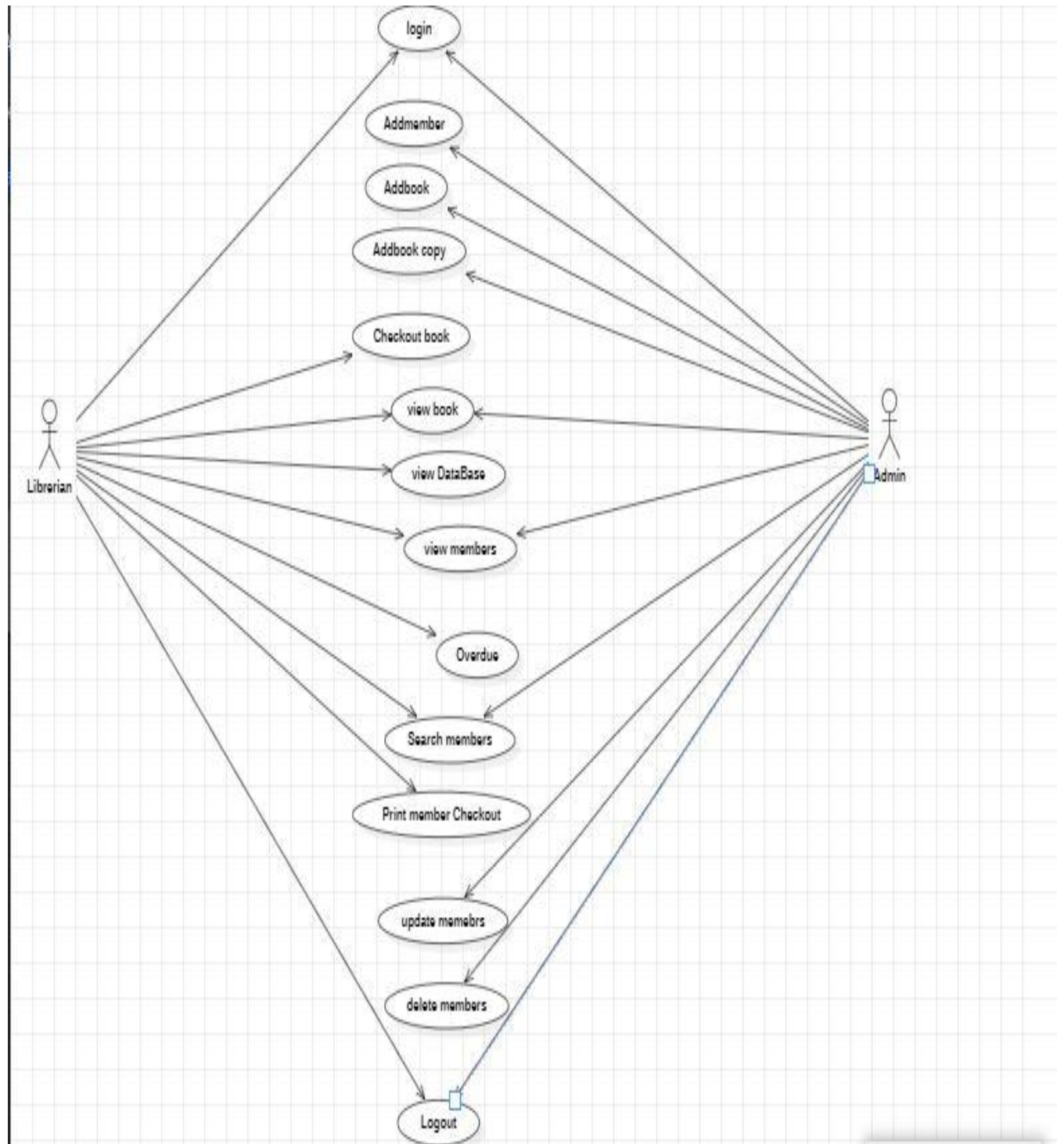4. Class Diagram
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1. Implemented Functionalities

i)   Login (as admin or librarian or both)

ii)   Admin
   a. Add, View, Search, Update, Delete Members
   b. Add, View Book
   c. Add Book Copy

iii)   Librarian
   a. Checkout Book
   b. View book
   c. View checkout
   d. View member detail
   e. Search member
   f. Print member checkout to console
   g. View overdue
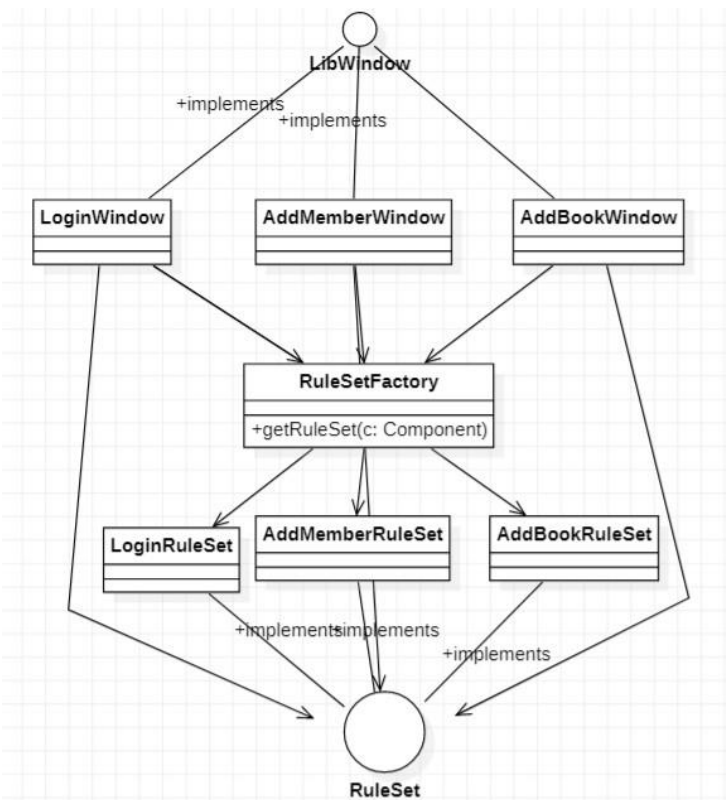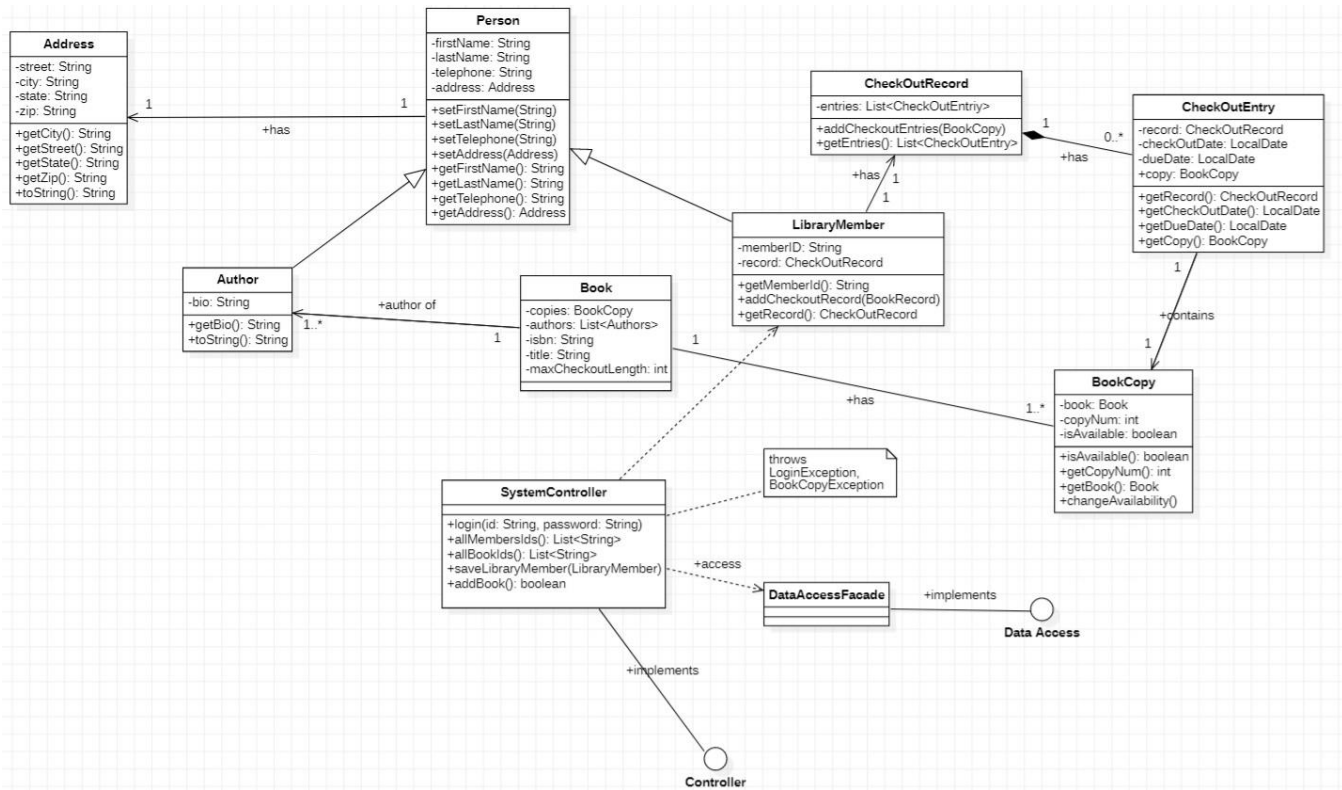
iv)   Logout

2. Extra Features Implemented

   a. Add a book to the library collection
   b. Given a library member id, print (to console) the checkout record of that library member
   c. Determine Overdue
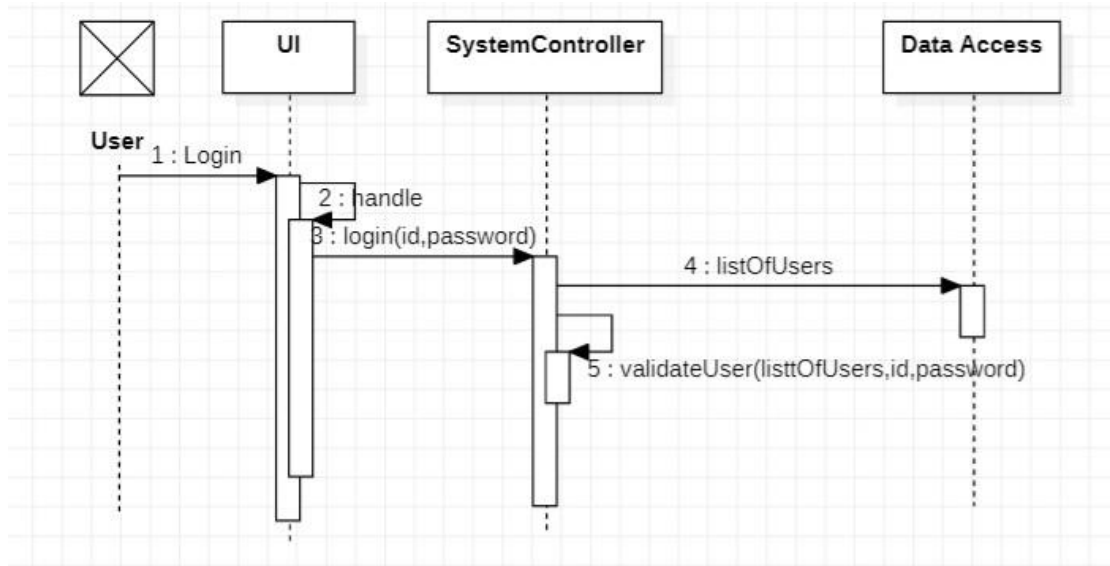   d. Update and delete members

3. Use Case Diagram

If the user is acting as both Librarian and Admin, then all the use cases will be applicable for it.
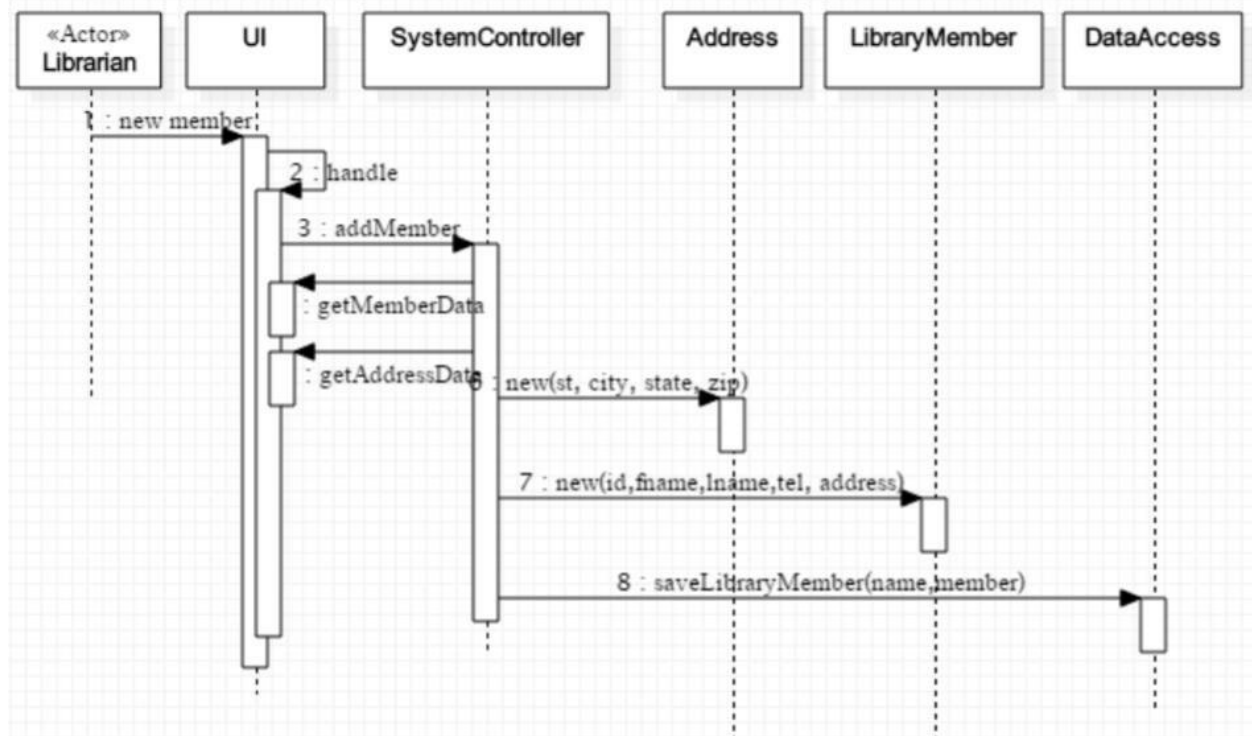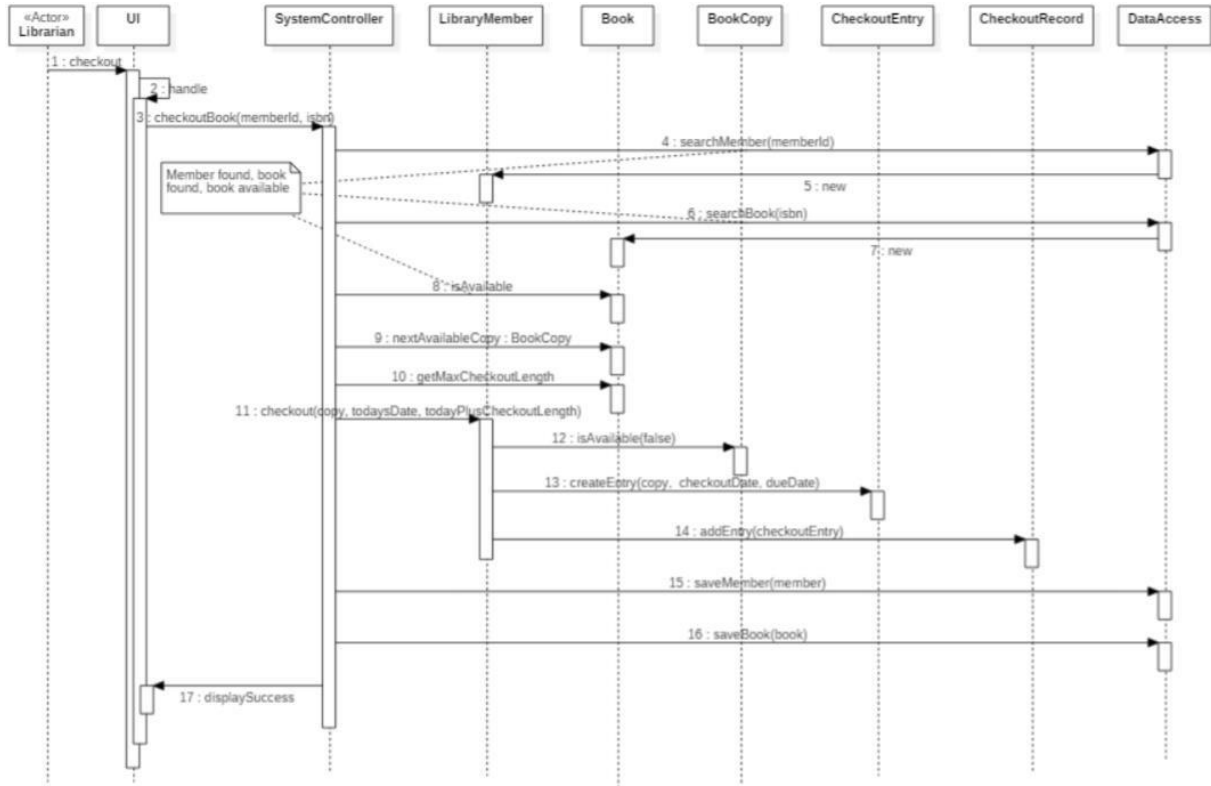
4. Class Diagram

Address
-street: String
-city: String
-state: String
-zip: String

+getCity(): String
+getStreet(): String
+getState(): String
+getZip(): String
+toString(): String

Person
-firstName: String
-lastName: String
-telephone: String
-address: Address

+setFirstName(String)
+setLastName(String)
+setTelephone(String)
+setAddress(Address)
+getFirstName(): String
+getLastName(): String
+getTelephone(): String
+getAddress(): Address

+has

CheckOutRecord
-entries: List<CheckOutEntriy>

+addCheckoutEntries(BookCopy)
+getEntries(): List<CheckOutEntry>

+has

CheckOutEntry
-record: CheckOutRecord
-checkOutDate: LocalDate
-dueDate: LocalDate
+copy: BookCopy

+getRecord(): CheckOutRecord
+getCheckOutDate(): LocalDate
+getDueDate(): LocalDate
+getCopy(): BookCopy

0..*   +has

Author
-bio: String

+getBio(): String
+toString(): String

+author of   1..*

Book
-copies: BookCopy
-authors: List<Authors>
-isbn: String
-title: String
-maxCheckoutLength: int

LibraryMember
-memberID: String
-record: CheckOutRecord

+getMemberId(): String
+addCheckoutRecord(BookRecord)
+getRecord(): CheckOutRecord

+has

BookCopy
-book: Book
-copyNum: int
-isAvailable: boolean

+isAvailable(): boolean
+getCopyNum(): int
+getBook(): Book
+changeAvailability()

+contains

SystemController
+login(id: String, password: String)
+allMembersIds(): List<String>
+allBookIds(): List<String>
+saveLibraryMember(LibraryMember)
+addBook(): boolean

throws
LoginException,
BookCopyException

+access

DataAccessFacade
+implements

Data Access

+implements

Controller

LibWindow

+implements   +implements

LoginWindow

AddMemberWindow

AddBookWindow

RuleSetFactory
+getRuleSet(c: Component)

LoginRuleSet

AddMemberRuleSet

AddBookRuleSet

+implements +implements   +implements

RuleSet

5. Sequence Diagram
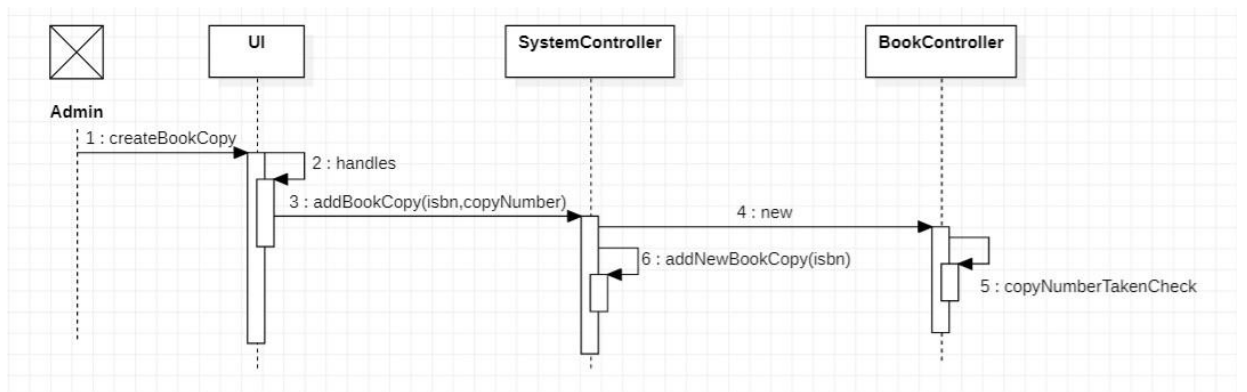
1. Login

2. Add Member

3. Check out book if available

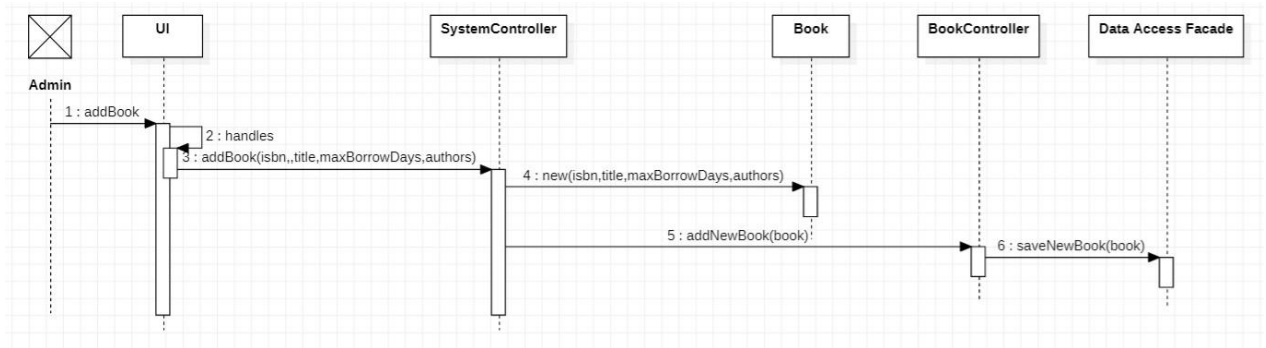### 4. Add copy of an existing book

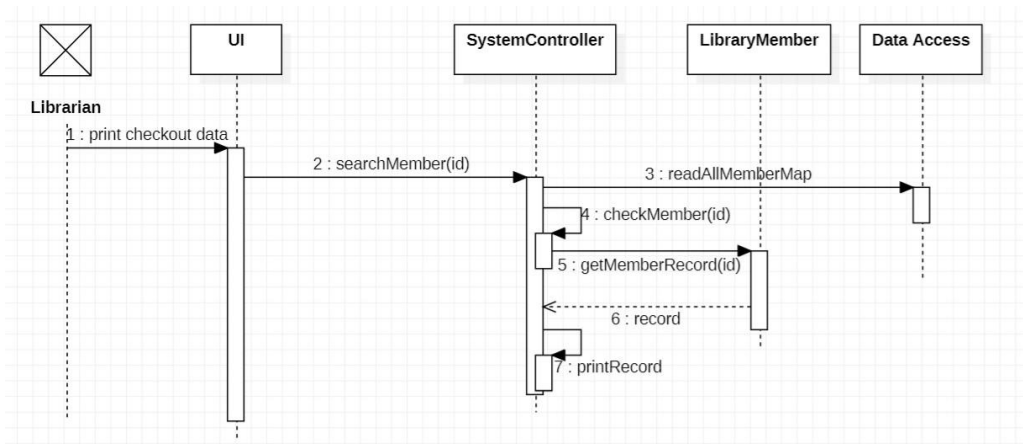## 5. Add book to library

6. Print checkout data in the console

7. Overdue