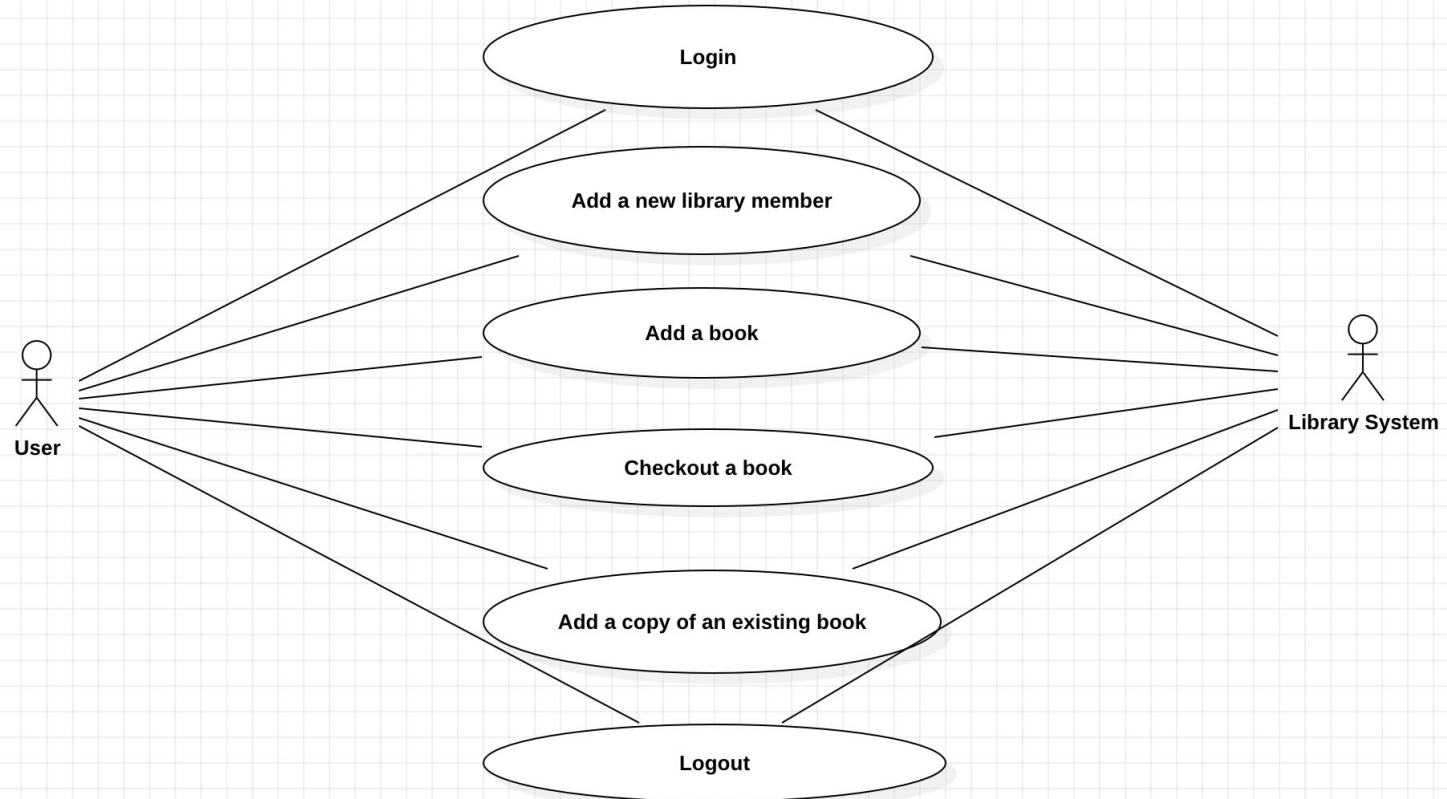# Project: Library Management System

Developed by Group-4

1. Abdoon Nur,

2. Binod Rasaili,

3. Phurpa Wangchuk)
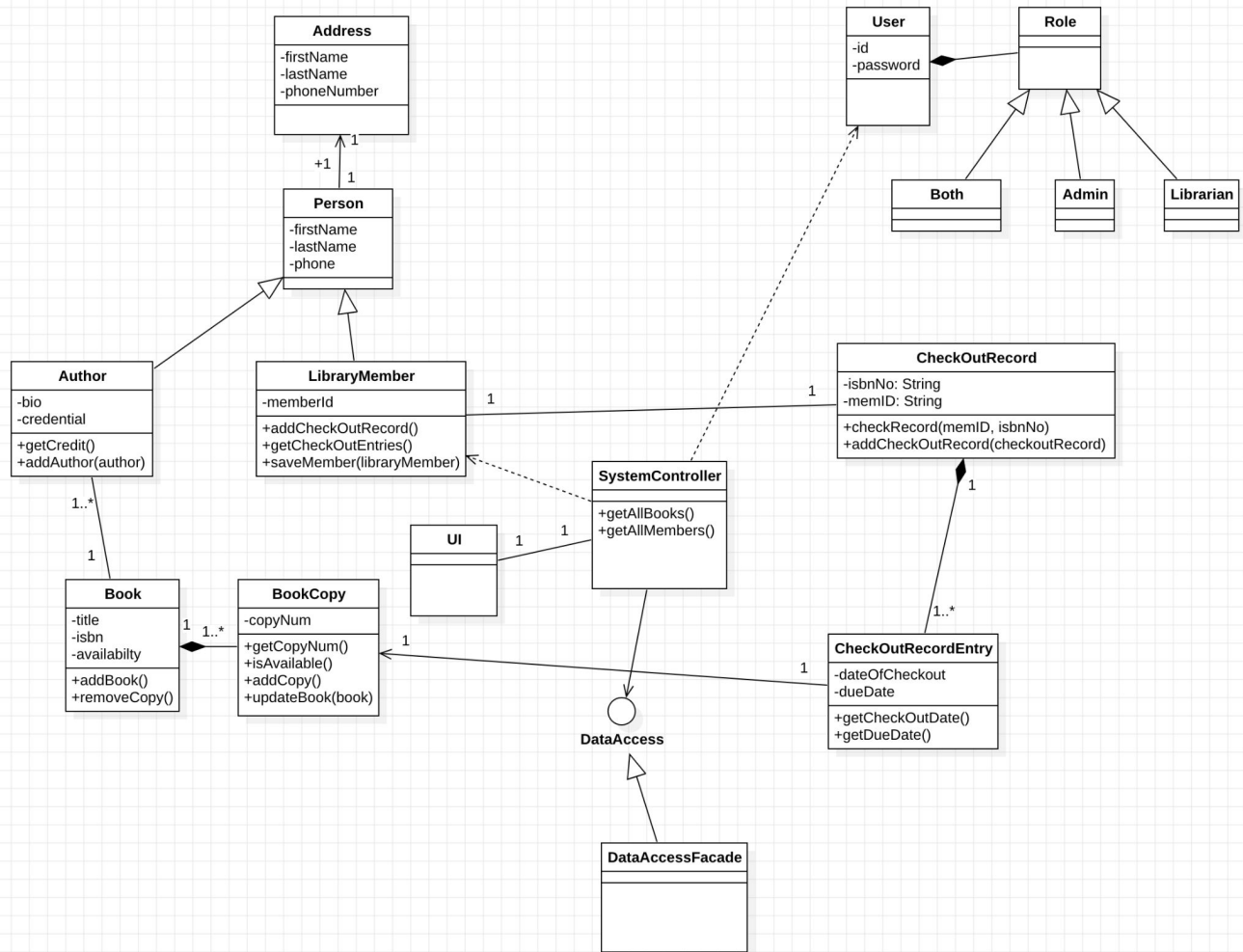
Professor: Renuka Mohanraj
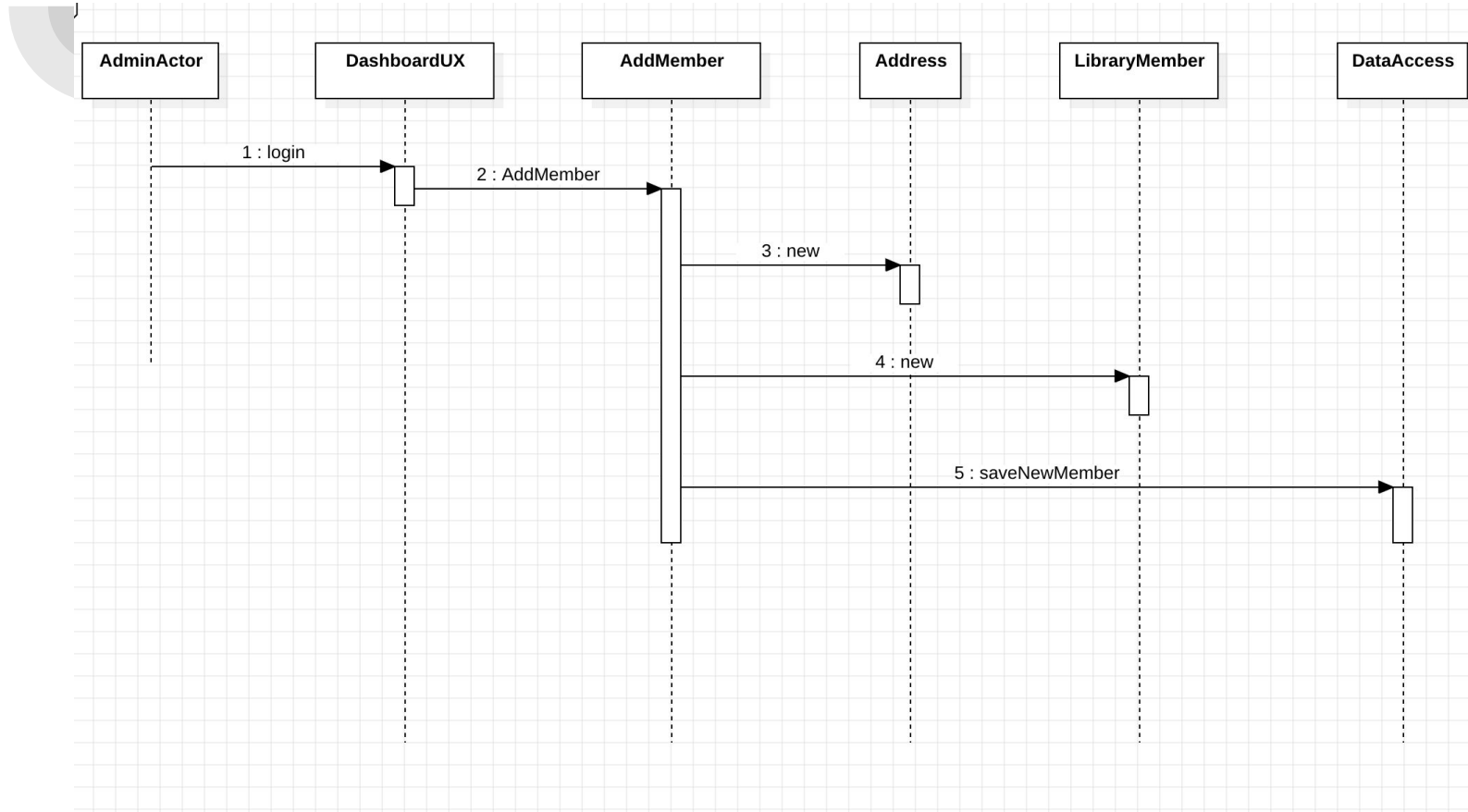
# Use Case Diagram



User

Login

Add a new library member

Add a book

Checkout a book

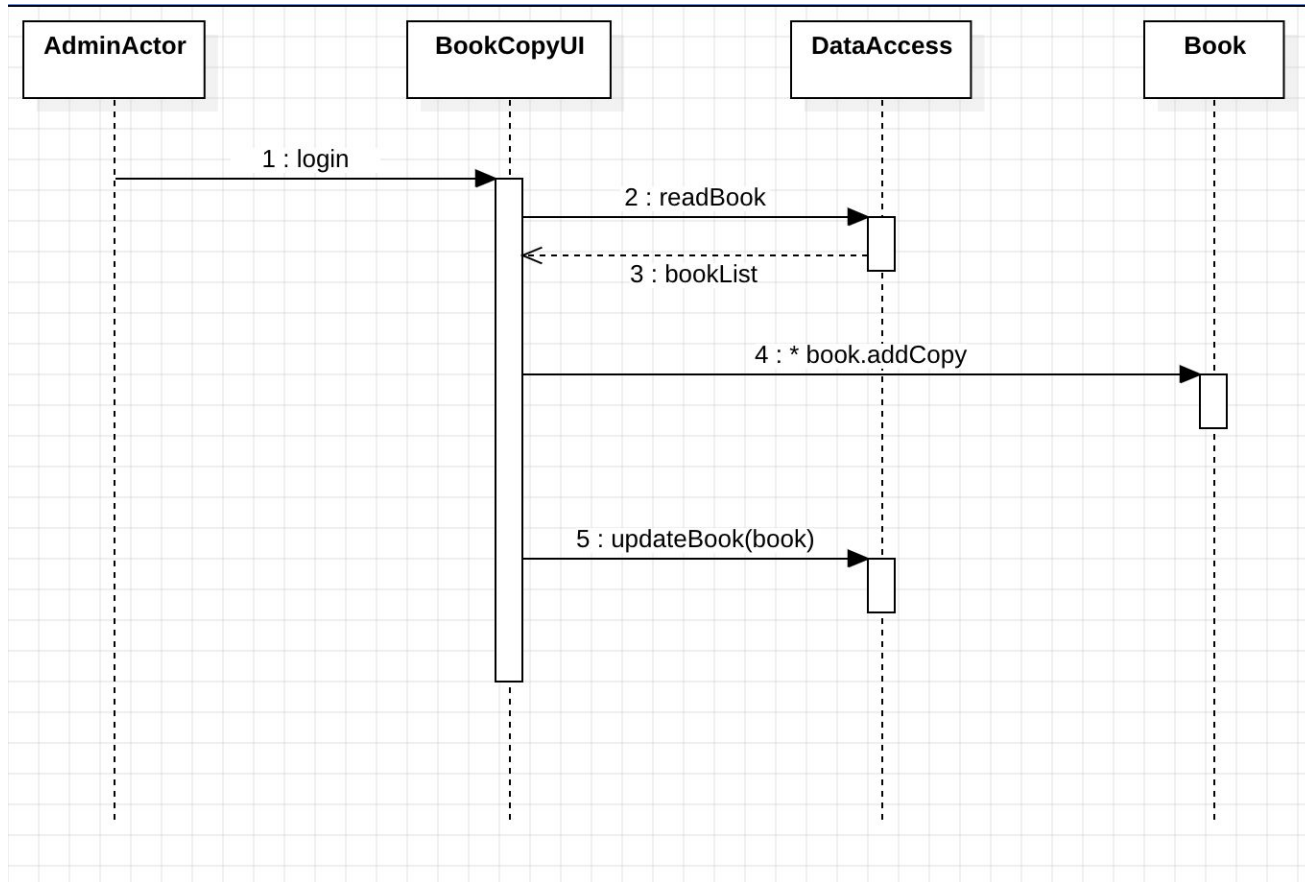Add a copy of an existing book
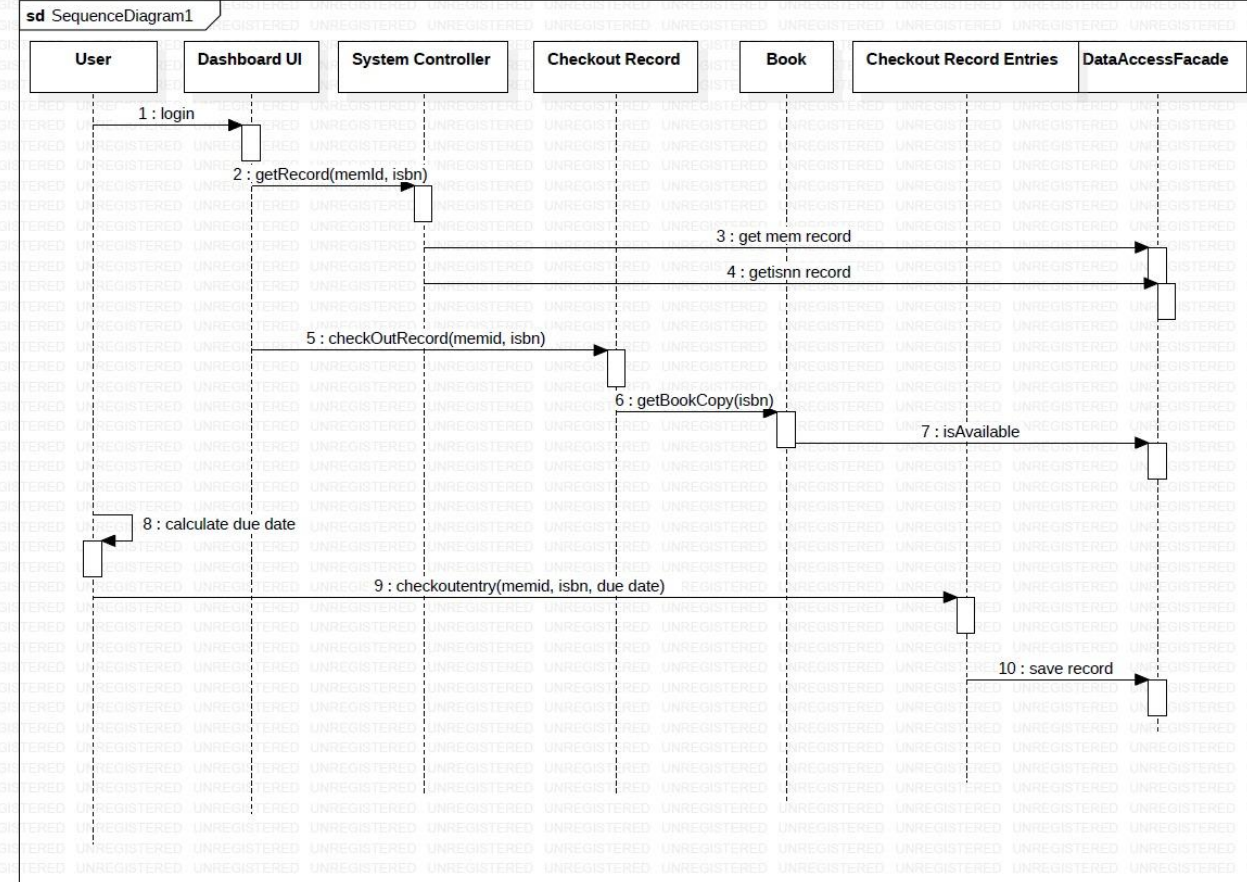
Logout

Library System

# Class Model

# Sequence Diagrams (Add Member)

# Sequence Diagrams (Add Book Copy)

# Sequence Diagrams (Checkout Record)



Collaboration1::Interaction1::SequenceDiagram1

**sd** SequenceDiagram1

| User | Dashboard UI | System Controller | Checkout Record | Book | Checkout Record Entries | DataAccessFacade |
|------|--------------|-------------------|-----------------|------|-------------------------|-------------------|

1 : login

2 : getRecord(memId, isbn)

3 : get mem record

4 : getisnn record

5 : checkOutRecord(memid, isbn)

6 : getBookCopy(isbn)

7 : isAvailable

8 : calculate due date

9 : checkoutentry(memid, isbn, due date)

10 : save record

# Validation Rules 1/3

- **Login**
    - Username (Alphanumeric, Required)
    - Password (Alphanumeric, Required)


- **Member**
    - Member ID (Auto-Generated, 4-Digits)
    - First Name (Min-3 and Max-Length-15)
    - Last Name (Min-3 and Max-Length-15)
    - Street (Min-3 and Max-Length-15)
    - City (Min-3 and Max-Length-15)
    - State (Min-3 and Max-Length-15)
    - Zip  (Min-3 and Max-Length-7)
    - Telephone (XXX-XXX-XXXX)

# Validation Rules 2/3

- **Book**
    - ISBN (Numeric, XX-XXXXXXX)
    - Title (Alphanumeric, Min-5, Max-50)
    - Author (Min-1 Author is required)


- **Author**
    - First Name (Min-3, Max-Length-15)
    - Last Name (Min-3,Max-Length-15)
    - Street (Min-3, Max-Length-15)
    - City (Min-3, Max-Length-15)
    - State (Min-3, Max-Length-15)
    - Zip  (Min-3, Max-Length-7)
    - Bio (Optional)
    - Telephone (XXX-XXX-XXXX)

# Validation Rules 3/3

- **BookCopy**
  - CopyNumber (Numeric, Min-1)

- **CheckoutRecord**
  - Member ID (Numeric, Length-4)
  - ISBN (XX-XXXXXXX)

- **CheckoutEntryRecord**
  - CheckoutDate (CheckoutDate must cannot be past date)

# SCI Conclusion

- The purpose of the life is to grow. Similarly as we worked on this project, it helped us to expand our experience on Java Swing GUI.

- Individual forms of activity gives satisfaction and fulfilment of the goal. As polymorphism gives many forms to achieve the output.