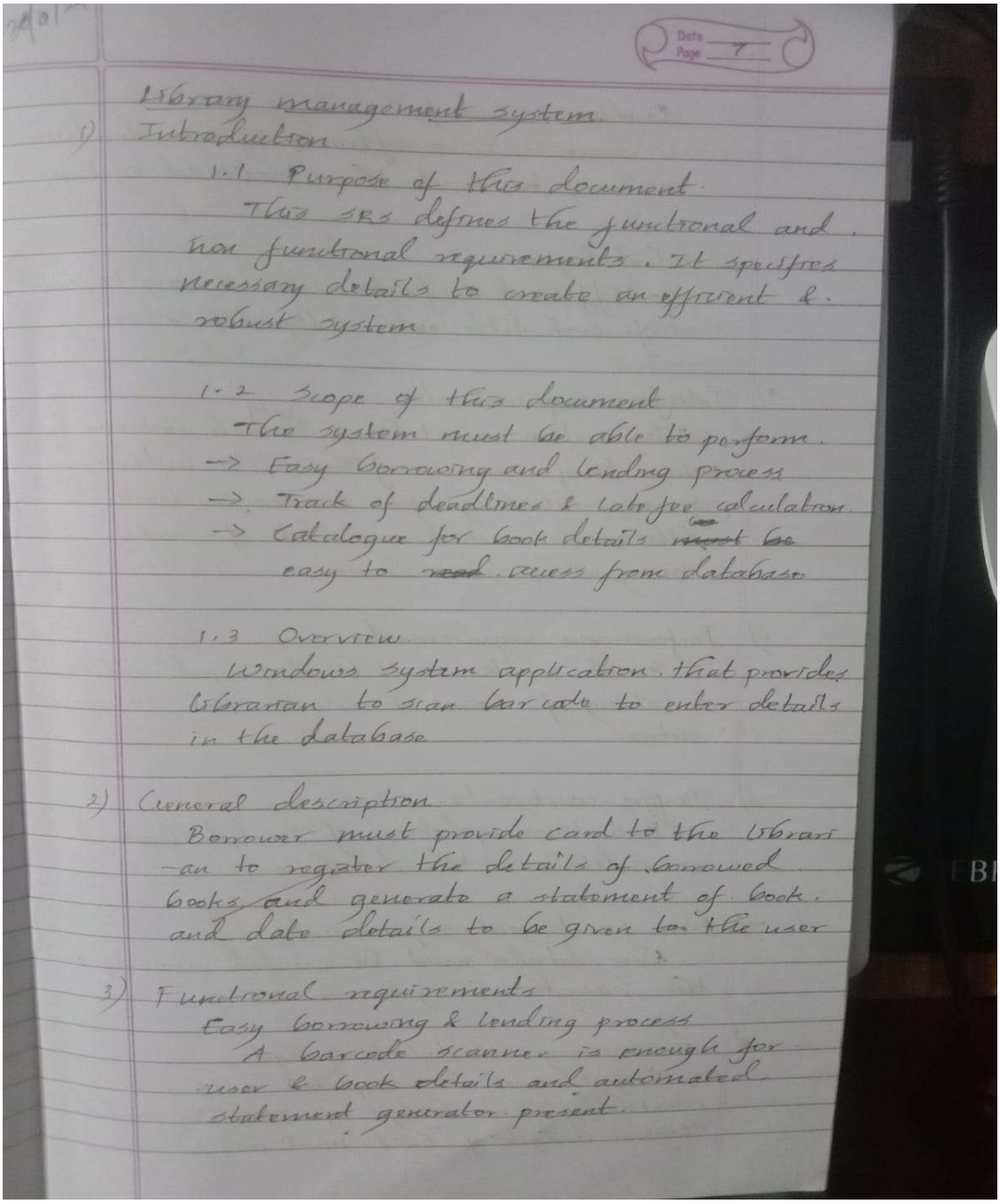
2. Library Management System

a. SRS Document:



Library management system.

1) Introduction

1.1 Purpose of this document

This SRS defines the functional and non functional requirements. It specifies necessary details to create an efficient & robust system.

1.2 Scope of this document

The system must be able to perform.

→ Easy borrowing and lending process

→ Track of deadlines & late fee calculation

→ Catalogue for book details ~~must~~ be easy to ~~read~~ access from database.

1.3 Overview.

Windows system application that provides Librarian to scan barcode to enter details in the database.

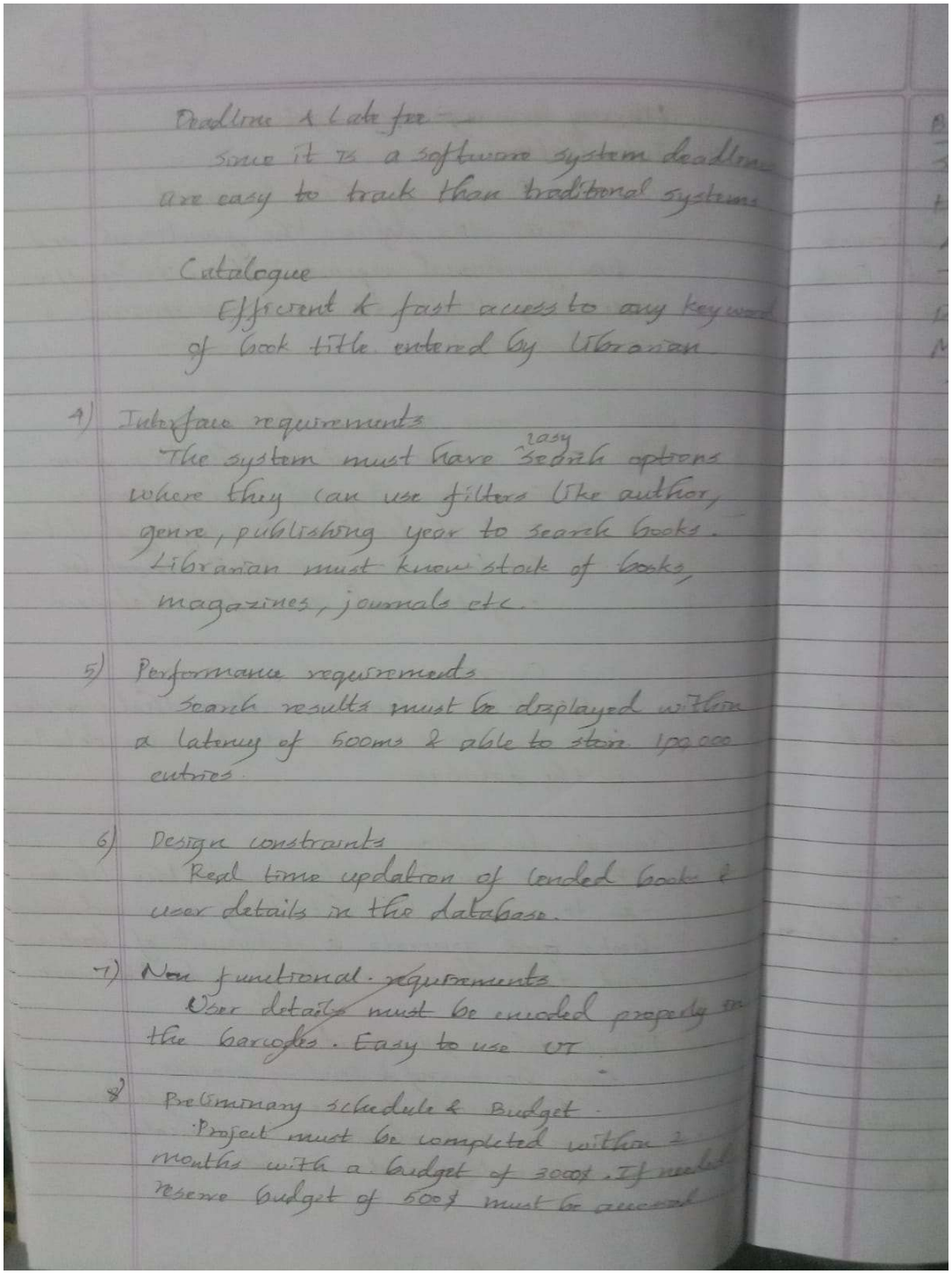
2) General description

Borrower must provide card to the Librarian to register the details of borrowed books and generate a statement of book and date details to be given to the user

3) Functional requirements

Easy borrowing & lending process

A barcode scanner is enough for user & book details and automated statement generator present.



Deadline & Late fee
Since it is a software system deadlines are easy to track than traditional systems

Catalogue
Efficient & fast access to any keyword of book title entered by librarian

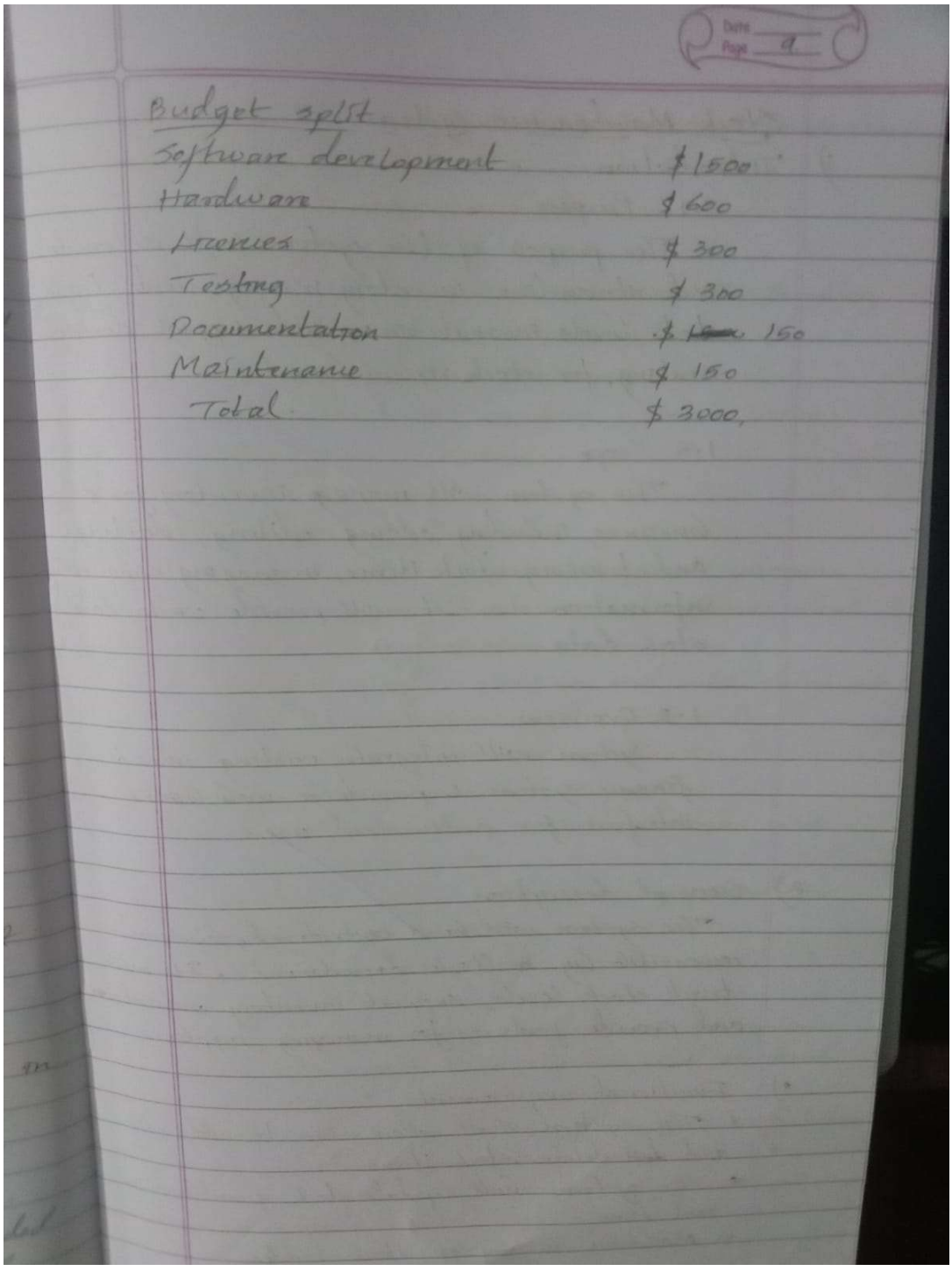
4) Interface requirements
The system must have easy search options where they can use filters like author, genre, publishing year to search books. Librarian must know stock of books, magazines, journals etc.

5) Performance requirements
Search results must be displayed within a latency of 500ms & able to store 100,000 entries.

6) Design constraints
Real time updation of lended book & user details in the database.

7) Non functional requirements
User details must be encoded properly on the barcodes. Easy to use UI

8) Preliminary schedule & Budget
Project must be completed within 2 months with a budget of 3000$. If needed reserve budget of 500$ must be allocated



Budget split

Software development	$1500
Hardware	$600
Licenses	$300
Testing	$300
Documentation	$150
Maintenance	$150
Total	$3000

b.Advanced Class Diagram:

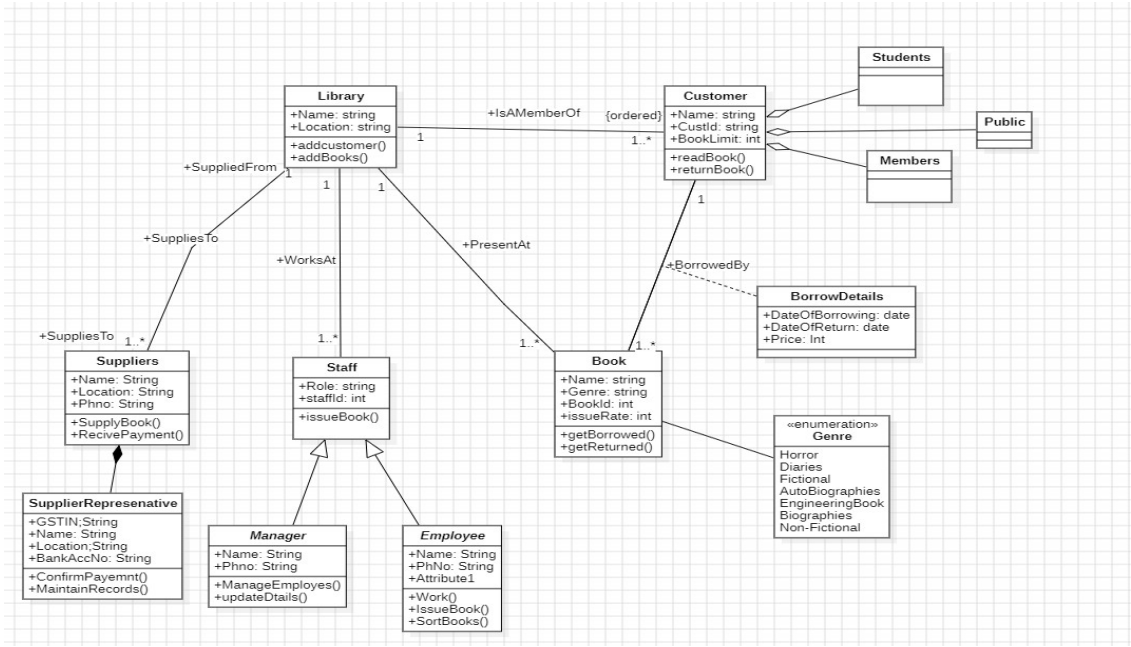
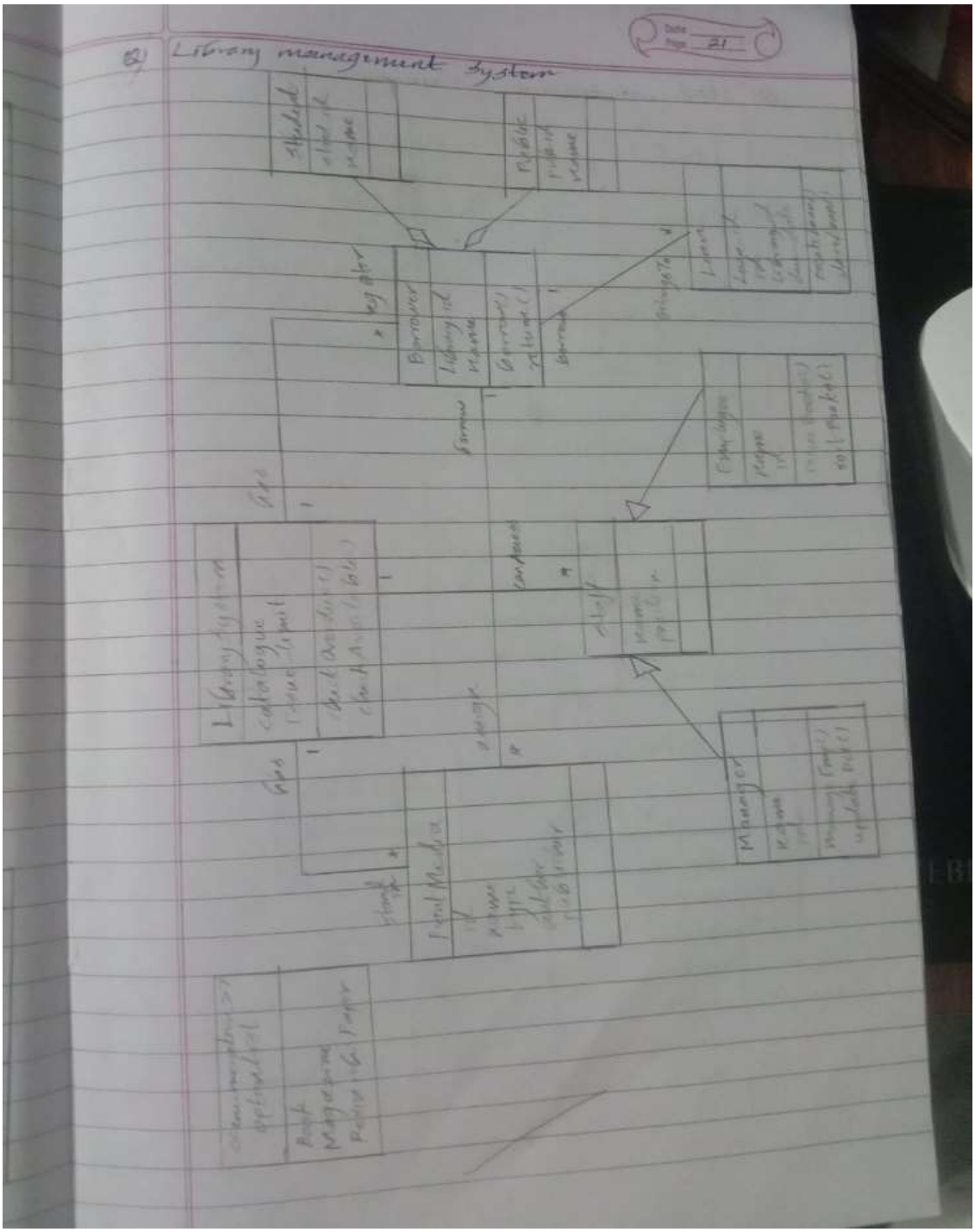


Fig 2.2:


Q) Library management system

c.Advanced State Diagram:

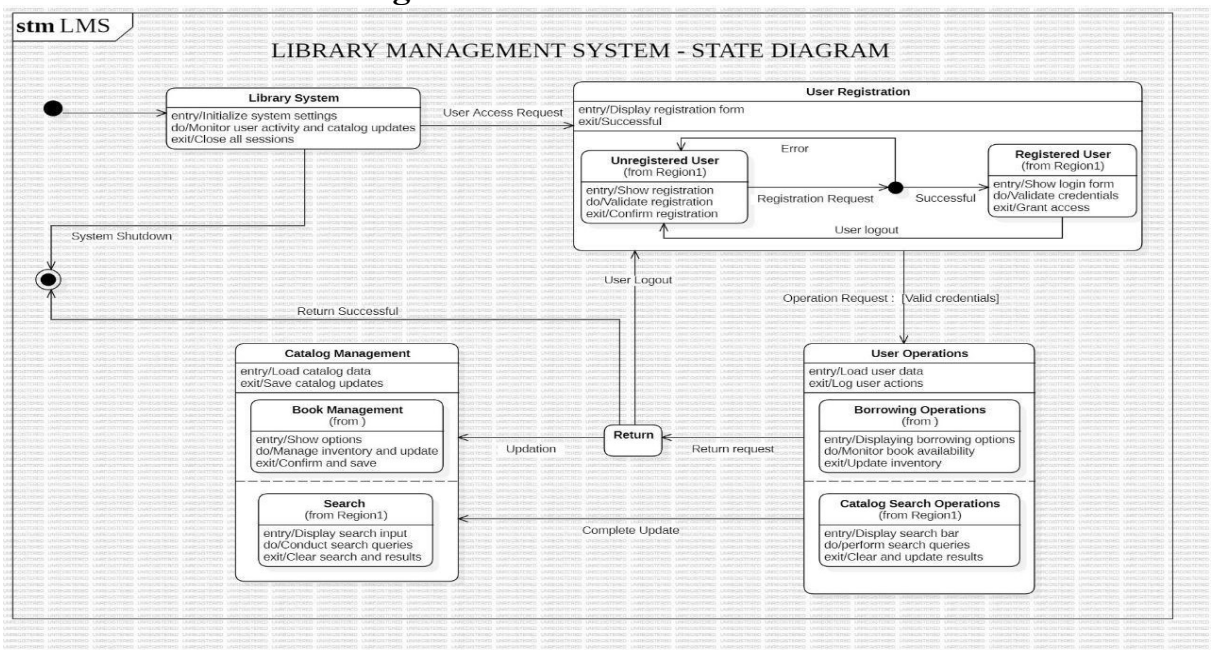
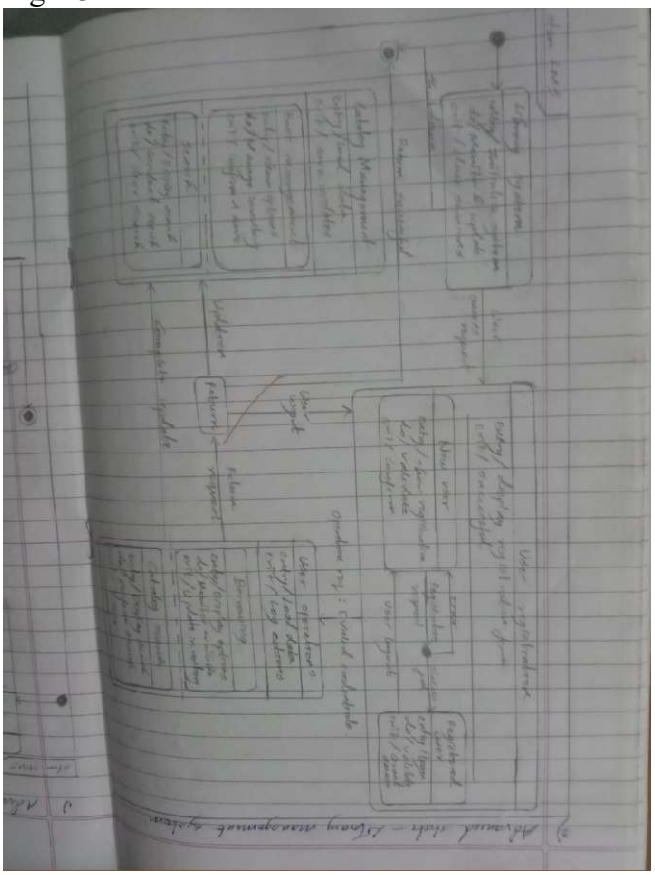


Fig 2.3:



d.Use Case Diagram:

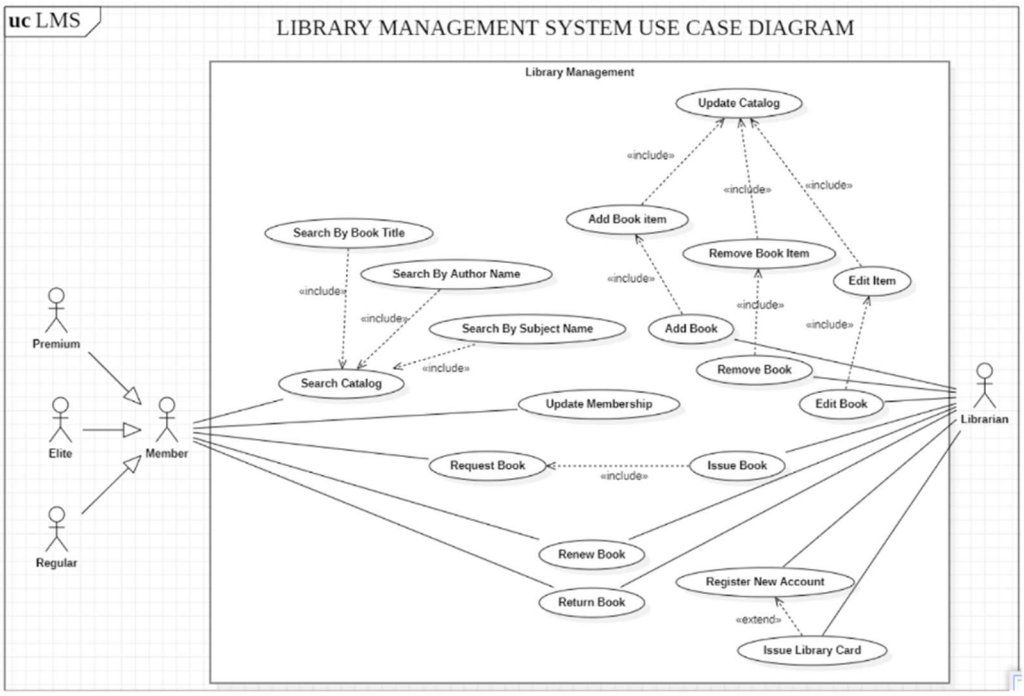
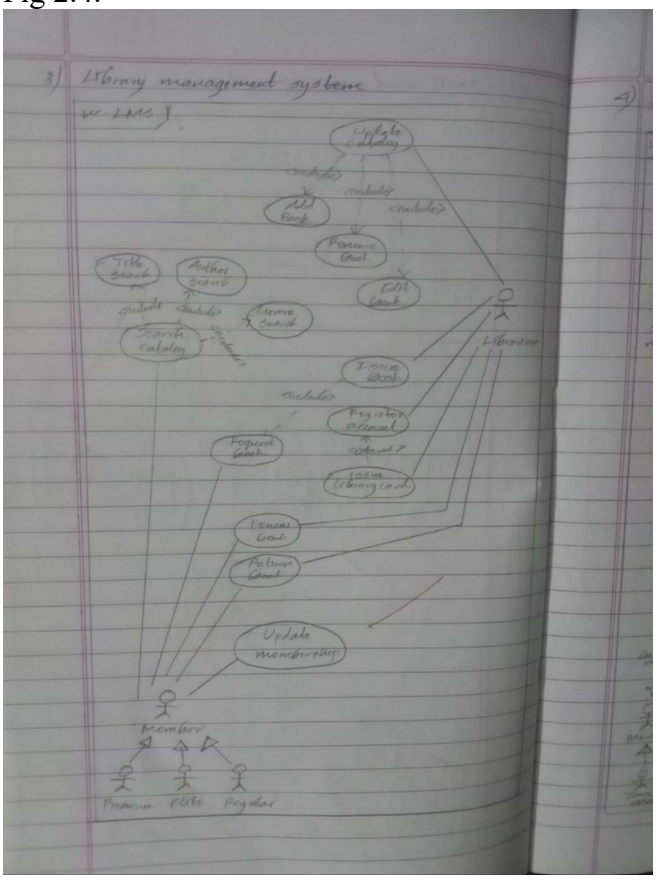
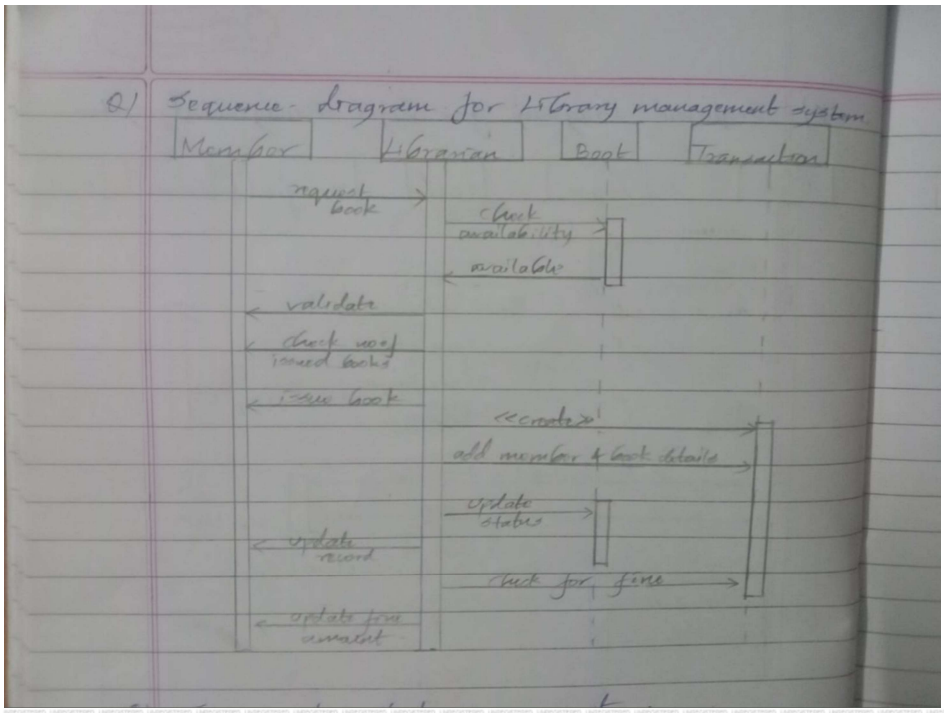


Fig 2.4:



e.Sequence Diagram:



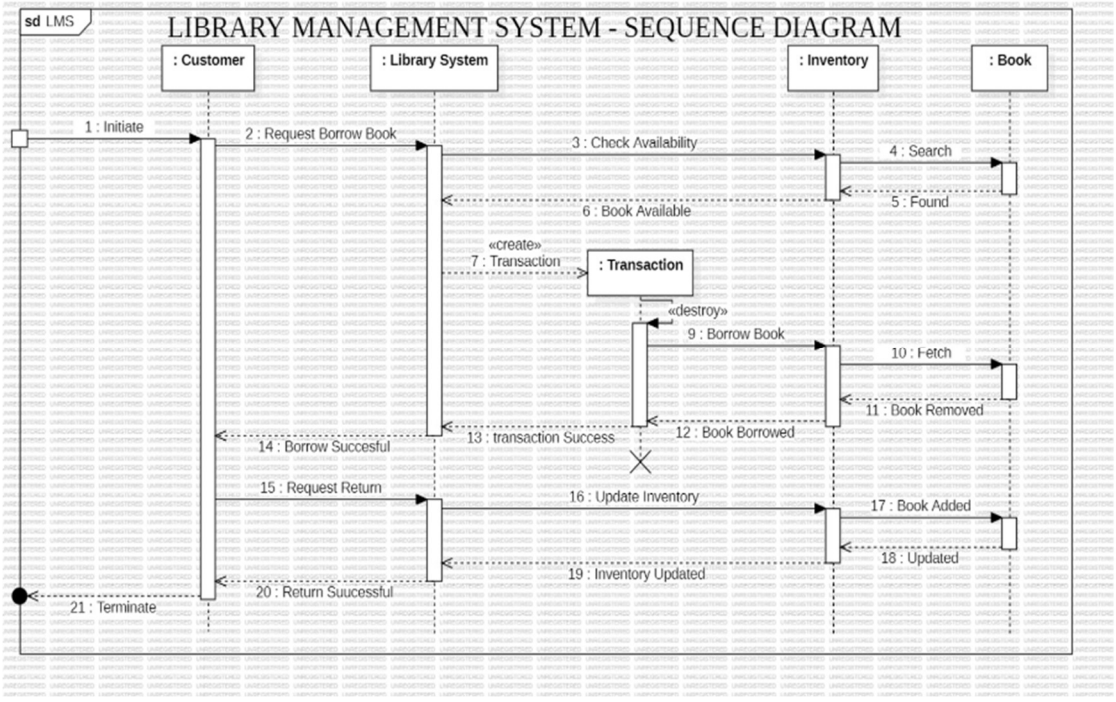
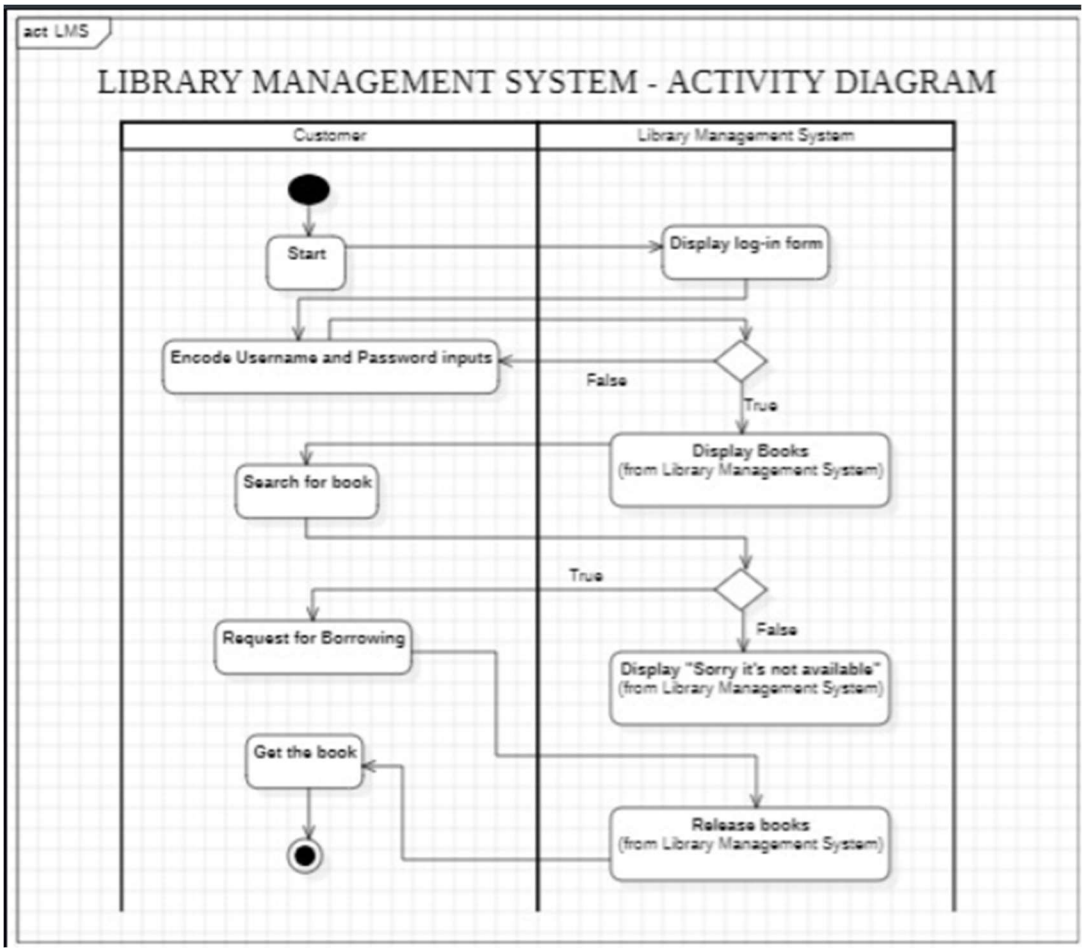


Fig 2.5:

f.Activity Diagram:



 Actors:

- **Customer**: Represents the user interacting with the system.
- **Library Management System**: Represents the system itself.

 Process Flow:

- The customer starts by logging in, encoding their username and password.
- The system validates the credentials. If invalid, the process stops; if valid,proceeds.
- The customer searches for a book. The system checks the book's availability:
    - If the book is unavailable, the system displays a "not available" message.
    - If available, the customer requests to borrow the book, and the system releases it to them.

 Decisions:

- There are decision points for login validation and book availability, indicating alternate flows.

6) Library management system