

**University of Maryland Global Campus**

**Library Management System (LMS)**

**Project Analysis**

**CMSC 495 7380**

**12 April 2023**

**Version 1.9**

**Group 3: Brandon Durham, Benjamin Kus, Benjamin Ramos**

## **Revision History**

REVISION	DATE	DESCRIPTION	Author
1.0	3/28/2023	Initial	Ben Ramos
1.1	3/28/2023	Addition of Context Diagram	Ben Kus
1.2	3/29/2023	Addition of Subsystem Diagram	Ben Kus
1.3	4/1/2023	Addition of Subsystem Requirements Table	Brandon Durham
1.4	4/1/2023	Addition of Subsystem Descriptions	Ben Kus
1.5	4/4/2023	Rick Management	Brandon Durham
1.6	4/4/2023	Project Analysis Document Modifications	Ben Ramos
1.7	4/10/2023	Grammatical Document Modifications	Ben Ramos
1.8	4/11/2023	Modifications to Input Data and Sources	Brandon Durham
1.9	4/12/2023	Modification to Subsystems Diagram, Addition of Subsystems Description, Mod to Subsystems Table	Ben Ramos Brandon Durham Ben Kus

## **TABLE OF CONTENTS**

1	Introduction
2	Outside Systems
3	Input Data and Sources
4	Output Data and Destinations
5	Data Processing
6	Subsystems Data and Description
7	Subsystems Requirement Mapping
8	Possible Project Enhancement
9	Risks and Risk Management

## **1 Introduction**

A library management system is a project which aims in developing an application to maintain the book catalog of a library. The purpose of this is to provide administrators with the ability to conduct daily maintenance to its book catalog. It will provide an easy and administrator-friendly way to track books, add and remove users, as well as track overdue books and numerous other functions.

## **2 Outside Systems**

- a. Library Administrators

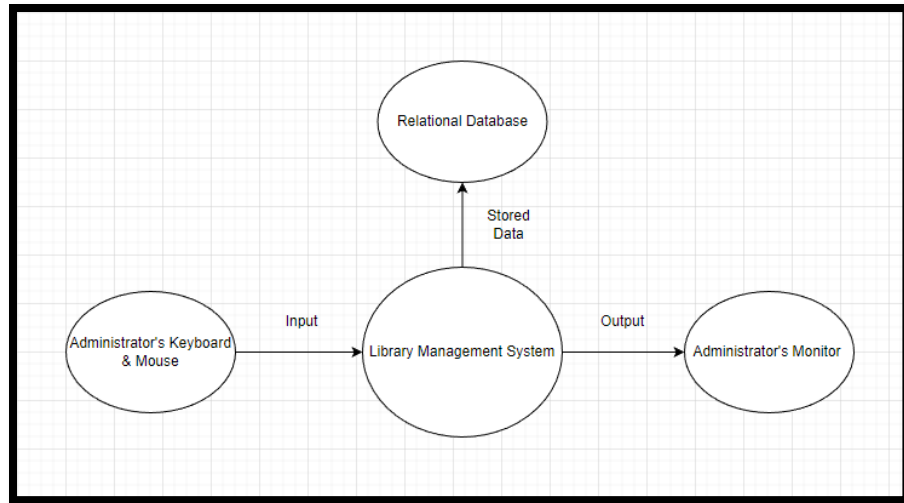
## **3 Input Data and Sources**

- a. User Information
  - i. Name (First Name, Last Name)
  - ii. Current Address
  - iii. Email Address
- b. Book Information
  - i. Title
  - ii. Author
  - iii. ISB number
- c. Administrator Login
  - i. Username
  - ii. Login
- d. Misc. Data
  - i. Check Out/In Date

## **4 Output Data and Destinations**

- a. User Information
- b. Book Catalog
- c. Issued/Returned Books

All output data is displayed to the administrator on the monitor. All data will be saved to an internal database.

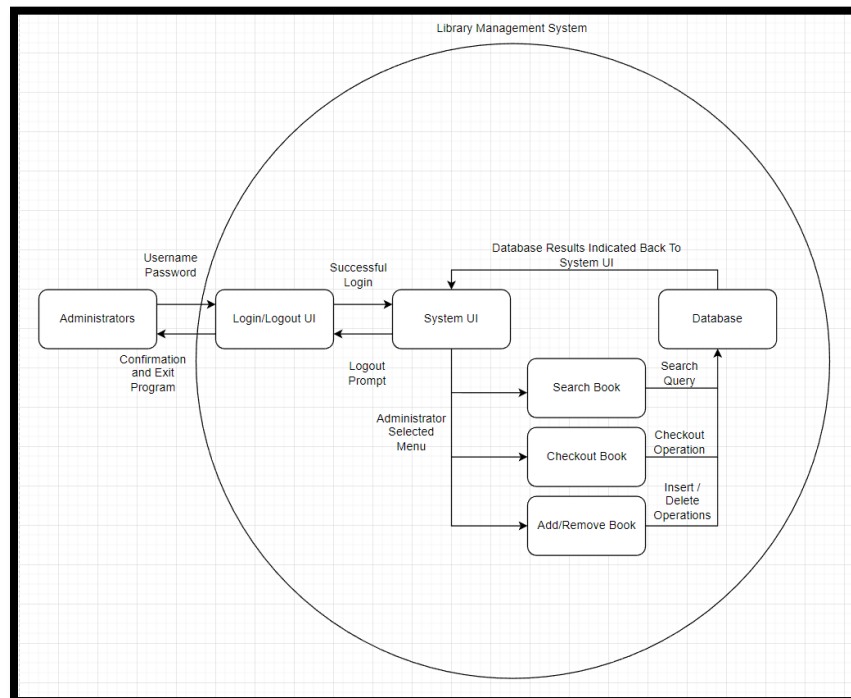


*Fig. 1: Context Diagram*

## 5 Data Processing

- a. The application will take the information that is inputted by the library administrators. The information will be stored in a database where it can be retrieved from the administrator to track book inventory, check out statuses, as well as view users' information and those with books issued.

## 6 Subsystems Data Diagram and Description



*Fig. 2: Subsystems Design*

### Subsystem Descriptions:

1. Login/Logout UI: The initial page that the administrator will view access and sign out of the application.
2. System UI: This will act as the main page for the application and contain menus that the administrator can use to conduct other functions.
3. Checkout Book: This function will allow the administrator to issue a book to the library member. Will include the ability to enter the member's information.
4. Search Book: UI that will allow the administrator to search the library inventory for books. This is attached to the internal database.
5. Add/Remove Book: This will serve as a function for the administrator to add and remove books to the database. This will update the library inventory to the current status.
6. Database: This will contain the books and member information and will have a query-able function that will produce an output database result.

## 7 Subsystems Requirement Mapping

Requirement Number	Description	Subsystem
1	The system shall provide the administrator with a login screen	Login/Logout UI
2	The system shall provide an administrator-specific display to conduct admin role	System UI
3	The system shall provide an administrator-specific display to check out books	Checkout Book, Database
4	The system shall allow the admins to include library borrower's information during issuing books	Database
5	The system shall allow the administrator to search for books based on title, author, etc.	Search Book, Database

6	The system shall allow administrators to add and remove books	Add/Remove Book, Database
7	The system shall provide the ability for admins to log out and end a session	Login/Logout UI

## 8 Possible System Enhancements

- Producing a capability to search by genre.
- Allowing for a sort method of each book input column
- Allowing for a library member (user) login function
- Allowing for a library member (user) search function

## 9 Risks and Risk Mitigation

Identify risks	Risk mitigation
Admin enters login password incorrectly	Admin will be displayed a warning message of a possible locked account
Invalid inputs such as special characters, letter grades, negative scores, or grades higher than one hundred.	The system will verify the usage of invalid characters during data entry
Password complexity requirement	Require admins to meet password complexity requirements
Chance of data loss/modification by admin	Display a warning message before deleting/saving a record