**University of Maryland Global Campus**

**Library Management System (LMS)**

**Project Analysis**

**CMSC 495 7380**

**4 April 2023**

**Version 1.6**

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**Revision History**

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| **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 |
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10. **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.

1. **Outside Systems**
   1. Library Administrators
2. **Input Data and Sources**
   1. User Information
      1. Name (First Name, Last Name)
      2. Current Address
   2. Book Information
      1. Title
      2. Author
      3. ISB number
   3. Administrator Login
      1. Username
      2. Login
   4. Misc. Data
      1. Check Out/In Date
3. **Output Data and Destinations**
   1. User Information
   2. Book Catalog
   3. Checked Out Books

All output data is displayed to the user on the monitor. All data will be saved to a internal database.

**Diagram

Description automatically generated**

*Fig. 1: Context Diagram*

1. **Data Processing**
   1. The application will take the information that is inputted by the library administrators. This information with 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 with books checked out.
2. **Subsystems Data Diagram and Description**

**Diagram

Description automatically generated**

*Fig. 2: Subsystems Design*

1. **Subsystems Requirement Mapping**

|  |  |  |
| --- | --- | --- |
| **Requirement Number** | **Description** | **Subsystem** |
| 1 | The system shall provide administrator with a login screen | Systems UI |
| 2 | The system shall provide an administrator specific display to conduct admin role | Systems UI |
| 3 | The system shall provide a administrator specific display to check out books | Systems UI |
| 4 | The system shall allow the admins to include library borrower’s information during issuing books | Books |
| 5 | The system shall allow the administrator to search for books based on title, author, etc. | Library Management System |
| 6 | The system shall allow administrators to add and remove books | Books |
| 7 | The system shall provide ability for admins to log out and end a session | System UI |

1. **Possible System Enhancements**
   1. Producing a capability to search by genre.
   2. Allowing for a sort method of each book input column
   3. Allowing for a library member login function
   4. Allowing for a library member search function
2. **Risk and Risk Mitigation**

|  |  |
| --- | --- |
| **Identify risks** | **Risk mitigation** |
| Admin enters login password incorrectly | Admin will be displayed a warning message of possible locked account |
| Invalid inputs such as special characters, letter grades, negative scores or grades higher than one hundred. | System will verify 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 prior to deleting/saving over a record |