This Library Management System seeks to implement a robust and efficient structure capable of catering to the need of a library and its patrons alike. The following are the functional requirements for a library management system:

1. The system should be able to add and remove books from the library as and when they become available or otherwise.
2. The system should allow users to search for books by author, title or ISBN.
3. The system should allow user to borrow and return books.
4. The system should be able to display a list of all available books.
5. The system should be able to store and retrieve information about members; including ID numbers and name.
6. The system should generate reports on library usage and checkouts.

In building the system, three main classes will be used; book, member and library.

Book Class

The book class will store the information about the book. This information includes title, author and the International Standard Book Number (ISBN).

Calling the methods in this class will allow you to return the name of the book, the author and the ISBN. The methods will also allow you to change the title, author and ISBN.

The class will also allow the user to check availability.

Member Class

The member class of the system will have (store) all the attributes that are common to both readers and the librarian. Such attributes will include name, ID, and possibly, email. The reader class will then inherit these methods and reader information. The librarian class will do same using the concept of polymorphism (method overloading).

Library Class

Using a vector, the library class will store the collection of books and allow books to be added and removed (using a vector will allow the array to resize as needed). The library class should also be able to print a list of all available books currently stored or supposed to be in the library. The library class will should also allow for books to be searched for.