Library Management System

1.0 Problem Definition

The Library Management System is a software, which automates the job of a librarian.

1.1 The user can inquire about the availability of a book in which he/she can search by entering the authors name or by entering the title of the book.

1.2 The user can borrow a book he/she must provide the username and card number, which is unique and confidential to each user, by confirming the authenticity of a user the library management system provide information about the number of books already borrowed by the user and by referring to the database whether the user can borrow book or not. The LMS allows the user to enter the title and the author of the book and hence issues the book if it is available.

1.3 By entering the user details and the book details the user can return the borrowed book.

2.0 System Requirement Specification

2.1 Introduction:

2.1.1 Purpose: The purpose of this System Requirement Specification (SRS) is to describe the requirements involved in developing a LMS

- The intendent audience is any person, who wants to inquire, borrow and return the book

2.1.2 Scope: The product titled "Library Management System

- *The Product will perform the following task.*
    - Inquire about the availability of the book.
    - Borrow books if available.
    - Return the borrowed books.

2.1.3 Overview: The SRS content and analysis of the requirements necessary to help easy design.

- The overall description provide interface requirements necessary for the LMS, Product Perspective, Hardware Interface, Software Interface, Communication Interface, Memory Constraints, Product Function, User Characteristics and other Constraints.

2.2 The Overall Description:

2.2.1 Product Perspective:

- **Hardware interfaces**:
    - The DB connectivity requires a hardware configuration that is online this makes it necessary to have a first database system running on high RPM. Hard disk permitting complete data redundancy and back-up system to support the primary goal of reliability.
    - The system must interface with the standard output devices and input devices to interact with this software.
- **Software Interfaces**:
    - Backend: MS-Access(2007).

- Frontend: MYCROSOFT Visual Basic 6.0.

- **Memory Constraints:**
  - No Specific Constraints on memory.
- **Operation**: The software allows 3 or more operations -
  - Inquire about the availability and status of books.
  - By extracting the username and password the software allows the user to borrow a maximum of 3 books.
  - By extracting the username and password the software allows the suer to return the borrowed books.

2.2.2 Product Function:

- Inquire about the availability and status of books.
- Search the availability of books by entering the book title.
- Search the availability of the book by entering the author of the book.
- The software validate the authentic user by extracting the username and password.
- After the validation of the user software allows the suer to borrow a maximum of three books based on the number of books, which are already borrowed.
- After the validation of the user software allows the user to return the book, which were borrowed.

2.2.3 User Characteristics:

- The intended user of this software did not have specific knowledge as to what is the internal operation of the system. The end user is at a high level of abstraction that allows easier, faster operation and reduces the knowledge requirement of end user.
- The product is absolutely user friendly, so the intended user can be naïve user.
- The product doesn't expect the user to process any technical background. Any person who knows to use computer can successfully use this product.

2.2.4 Constraints:

The user has a unique username and password there are no options to retrieve a password or username in case it is forgotten/lost. Hence the user is required to remember or store the username and password.

2.3 Specific Requirements:

2.3.1 Logical Database Requirements:

- The system should contain the DB's that include all necessary information's for the product to function according to the requirements.
- These include relations such as user details, book details, shelf details, transection details, (Issue, Return).
- The user details refers to the personal information's about the user such as username, DOB, date of admission, class, string, etc.
- Book details refers to information's refers to the information's regarding books such as title, author, availability, isbn no, publisher, number of copies, (issued, instock), etc.
- Shelf details include shelf number, location, etc.

- Transection, (issue, return) include type of transection, date of transection, transection id, etc.

2.4 Frontend Description:

The LMS is automates library system where the user can search for the book by either entering the details of the book or the author name.

By entering the username and password into the software, by checking the number of books that are already borrowed enables us to allow to borrow a maximum of three books.

By entering the username and password, which is unique, the user can return the book.

2.5 Backend Description:

The LMS consist of too many tables, here we only considered two table. One contains the student details and other contains the book details available.

2.6 Database Schema:

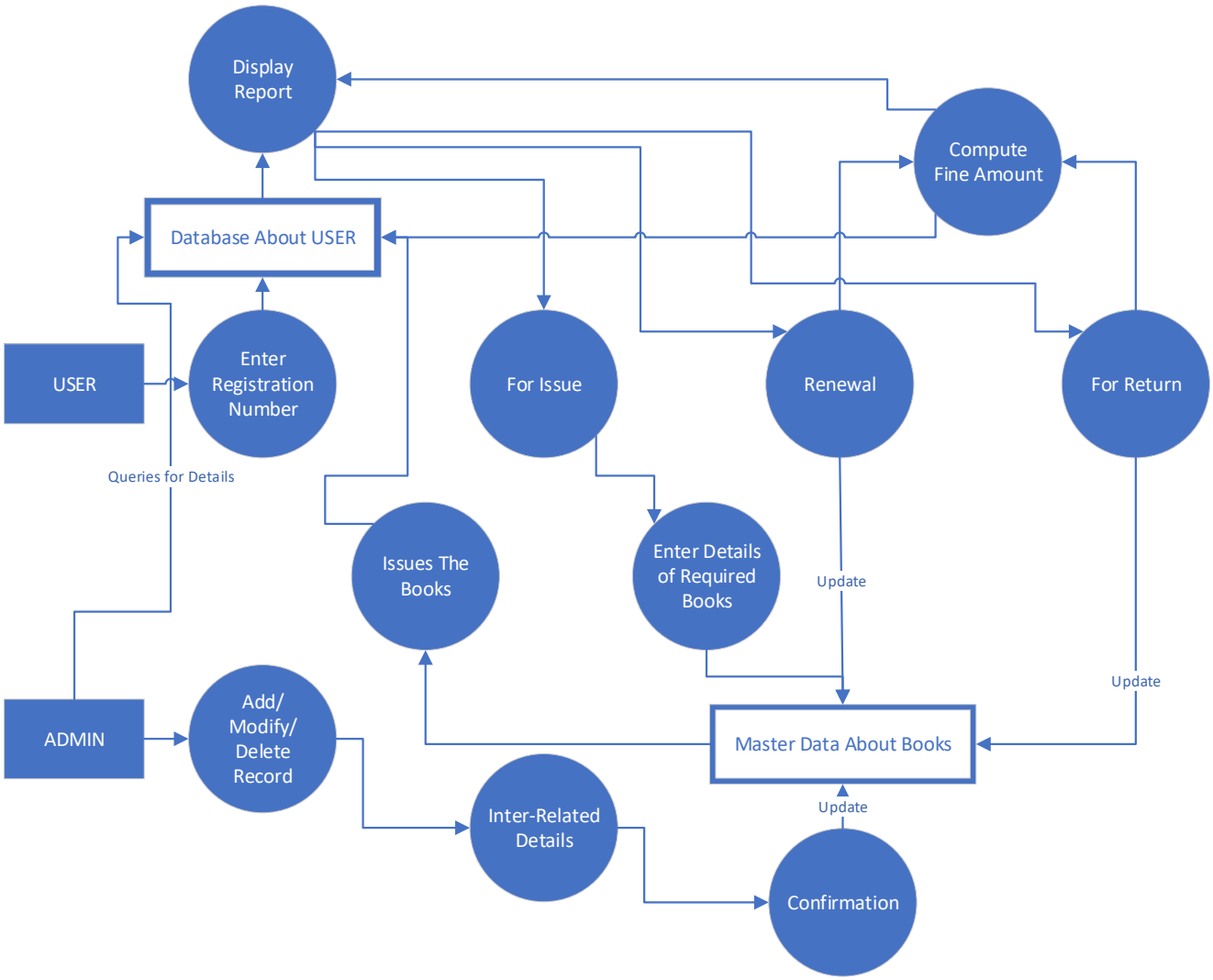
Book Details (Table)

Field Name	Type	Constraints
reg_number	NUMBER	NOT NULL
book_id	NUMBER	NOT NULL
book_name	TEXT	
author_name	TEXT	
publisher	TEXT	
Issue_date	DATE:TIME	
return_date	DATE:TIME	
copies	NUMBER	

Student Details (Table)

Field Name	Type	Constraints
roll_no	NUMBER	NOT NULL
name	TEXT	NOT NULL
gender	TEXT	
dept	TEXT	
email	TEXT	
password	TEXT	NOT NULL
no_of_books	NUMBER	NOT NULL

2.7 Data Flow Diagram



2.7 Testing

Form Name	Input	Expected Output	Actual Output	Status
Main Menu Form	Menu Option	Show Required Form	Required Form Was Displayed	Pass
Membership Form	Member Details Entered	Create New Member Account	New Member was Created	Pass
Login Form	Id, Password	If Password Correct, Login	Member is Authenticated For Further Operations	Pass
Issue Form	Book Id	If Book Issue Is Less Then 3, Issue The Book	Book was issued	Pass
Return/ Reissue Form	Book Id	Book Return/Reissued	Book Return/Reissued	Pass
Book Inquery	Book Name, Author Name	Book Details Are Displayed	Book Details Are Displayed	Pass