LIBRARY MANAGEMENT SYSTEM

**Objective**: To store, manage and process the various transactions that take place in a Library Management system.

**Overview**: This program consists of a client side program for providing an interface at the user end and for transferring inputs taken here to the server side. The server side program on the other hand does all the storing, processing and displaying data of the library books and users(here employees).

In the server side program, Server.java, there are 4 classes:

ServerSide class: This class is the base class for the program which displays the menu to the client running at some port.

Employee class : This class consists of various methods namely addEmployee(), updateEmployee(), deleteEmployee(), showEmployee() and are invoked based on the option chosen by the client.

Books class: This class consists of methods like addBook(), deleteBook(), showBook(), borrowBook(), returnBook(), queryBook() and are invoked as and when the client makes a choice.

DBCreation class: This class is executed only once in the beginning for creation of necessary tables for maintaining data about the library. The library Management Database has three tables: Employee table to store details like employee ID, employee name, phone number, etc.

Books table to store book details like book ID, title, author, status (if available or not), etc.

Checkout table to store the transaction details of book loan and return. Status column with 0 indicates it is unreturned and 1 indicates it has been returned.

The server.java also handles multi-threading, i.e, request from multiple clients. In client side program, merely display of menu and transferring inputs from client to server is handled.

Requirements:

**Requirement 1:** Add an employee record

  Each employee should have following attributes:

o    Employee ID/SSN (unique)

o    Name

o    Address

o    Phone number

**Requirement 2:** Update/ Delete an employee record

The record would be selected using the employee ID

 The record can be deleted if there are no books issued by user.

**Requirement 3:** Add a book item.

  Each book shall have following attributes:

o    Call Number

o    ISBN

o    Title

o    Author name

**Requirement 4:** Update / Delete a book item.

  The book item can be retrieved using the call number

The data item which can be updated is:

  ISBN

The book can be deleted only if no user has issued it.

**Requirement 5:** Query for books

 The display would also provide the number of copies which is available for issue

**Requirement 6:** Check-out a book

  The employee ID who is issuing the book would be entered.

  The issue date would automatically reflect the current system date.

 The due date would automatically be stamped as 7 days from current date.

**Requirement 7:** Check-in a book.

 The return date would automatically reflect the current system date.

**Requirement 8:** Display book detail

  The details to be displayed are:

o    Call number

o    ISBN

o    Title

o    Author

o    Issue status (In library or checked out)

o    If book is checked out it would display

o    User ID & Name

o    Checkout date

o    Due date

**Requirement 9:** View employee detail

The detail view should show:

o    User name, ID, Address & Phone number.

o    The books issued by user with issue date, due date, call number, title.