

Assignment On

Library Management System

Objective:

Design and implement a Library Management System using Java SE. The system should allow users to manage books, library members, and transactions efficiently.

Requirements:

1. Class Design:

- Create classes for “Book”, “LibraryMember” and “Transaction”.
- Implement necessary variables, constructors, and methods for each class.

2. Book Class:

- Attributes: “title”, “author”, “availability”, etc.
- Methods: “checkOut()”, “returnBook()”, etc.

3. LibraryMember Class:

- Attributes: “memberId”, “name”, “booksBorrowed”, etc.
- Methods: “borrowBook()”, “returnBook()”, etc.

4. Transaction Class:

- Attributes: “transactionId”, “book”, “member”, “checkoutDate”, “returnDate”, etc.
- Methods: “calculateFine()”, “isOverdue()”, etc.

5. Library Class:

- Create a 'Library' class to manage the overall system.
- Maintain lists of books, library members, and transactions.
- Implement methods for adding new books, registering new members, handling transactions, etc.

6. User Interface:

- Create a simple text-based user interface (UI) to interact with the Library Management System.
- Allow users to perform actions like borrowing books, returning books, viewing member details, etc.

7. Exception Handling:

- Implement exception handling to manage scenarios such as book not available, member already borrowed the maximum number of books, etc.

8. File I/O:

- Implement functionality to read and write data to files. Use files to store information about books, members, and transactions persistently.

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