

Library System

Design a class diagram for a library system.

The library where we design this system for has only books and magazines that are available for library members to borrow. Most books may be borrowed for 21 days, but some books only for 7 days. Most magazines may be borrowed for 7 days, but some only for 3 or 5 days. All members of the library have a unique member id. We also store the name, address and phone number of every member. For books we store the title, ISBN number, list of authors and availability. For magazines we store title and issue number.

The library has multiple copies for some popular books and magazines. Every copy of a book or magazine has its own unique *copyid*.

We also store the history of all the loans a library member made in the past, with the checkout date and return date for every book that the library member checked out. Members can also reserve books and magazines, and our system needs to keep track of which member reserves what book or magazine at what date.

Use Cases:

- 1) Add item to collection.
- 2) Checkout item
- 3) Return item
- 4) List all overdue items by customer
- 5) List all items for a user (on reserve, and checked out, overdue)
- 6) Check if an item is in the Library, and if it is available (not checked out, not on reserve).
- 7) Count totals for: all items, on reserve, checked out.