

HW 4(18th - 20th Jul)

We would like to have an Online Catalog for our institute as a part of Library Management System (LMS). You have to design the system where Visitors to the library can search library catalog online to get details of various resources - books, periodicals and ebooks. Each resource may have multiple copies. Each copy of a resource has a unique ID along with other details - Title, author name, category(Operating Systems, Algorithms etc). Further, each book and ebook may store edition details(Number, release year) and each periodical should store period detail.

The library manager may reserve or release an item in the records, on the respective event of issuing or return of a resource.

You may go for console based or GUI driven system design entirely your choice.

Description of Use cases:

- **Manage Account** The library manager requires login to perform the mentioned updates on the records. However, catalog maybe accessible without login to the visitors.
- **Library Manager** may add a new resource or copy of an existing resource with the system generating a unique ID
- **Search Catalog** - Visitor may search either by item name or author name. Returns the IDs and other details(edition for a book, period of release for a periodical etc.) of the resultant copies and number of copies available for the result of specified item name or author name.
- **Reserve Item** - Library manager reserves the specified item on issuing it, storing details of issuer and issuance duration. Reservation only possible if copies are available.
- **View Reserved item**: At a given point of time, the library manager should be able to view all the reserved items along with the corresponding issuer ID(eg. roll no.) and valid duration.
- **Release Item** - Admin releases the specified item on its return.

Identify and implement appropriate classes and interfaces to satisfy the system's requirements. Make sure to include validity checks for instance, admin can only reserve an item if he/she is logged in.

You are free to design input and output in any possible format as long as it supports the provided use cases.

Create a Main class with the main method to demonstrate all the mentioned use cases.