

Create the Class diagram to model an library system.

The library system consists of books, DVDs, library members, and library staff. Each of these entities has specific attributes and behaviors.

Book

Attributes : Title, Author, ISBN, Genre , Publication Year
Methods : Checkin(), CheckOut , GetInfo

DVD

Attributes: Title, Director, Genre, Producer, ReleaseYear, RunningTime,
Methods : Checkin(), CheckOut , GetInfo

LibraryMembers

Attributes : MemberID , Name, Address, Phone
Methods. :BorrowItem(), ReturnItem(), GetInfo()

Library Staff

Attributes : StaffId, Name, Position
Methods. : AddItemtoLibrary(), RemoveItemFromLibrary(), GetInfo

Add the following relationships

Polymorphism – Introduce an abstract class/interface named Item that represents items that can be borrowed from the library. It should have a method GetInfo() gives item specific information that is implemented in Book class and DVD.

Aggregation – Library staff manages multiple items

Inheritance – Subclasses for library member as staffmember and studentmember. Staff having empid and student having rollno as additional information

Interface – Add an interface ‘Searchable’ with a method “SearchByTitle” that both library member and Library staff implement

Draw a sequence diagram to illustrate the steps in borrowing an item

Library Member requests to borrow an item

Library staff checks if item is available.

If item is available, the item is loaned by staff

Adapt your class diagram to reflect these methods.