Class Diagram

for

Library Information System

Version 1.0 approved

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LibraryMember{Abstract}

#memberID: Integer {id, readOnly}
#name: String {readOnly}
#numberOfBooksIssued: Integer = 0
#listOfBooksIssued: Book[0..*]
#reservedBook: Book = None
#penaltyRate: Integer {readOnly}

+GetMemberID(): Integer
+GetName(): String
+GetNumberOfBooksIssued(): Integer
+CheckForReminder()
+SearchBook()
+CheckAvailabilityOfBook(String)
+IssueBook(Book)
+ReserveBook(String)
+{virtual} CanIssue()

Adds
Deletes
Sends
Reminder

0..*

1

Update
Information
in
Database

PostGraduateStudent

-maxBooksAllowed: Integer {readOnly}
-maxMonthsAllowed: Integer {readOnly}

+{virtual} CanIssue(): Bool

UnderGraduateStudent

-maxBooksAllowed: Integer {readOnly}
-maxMonthsAllowed: Integer {readOnly}

+{virtual} CanIssue(): Bool

ResearchScholar

-maxBooksAllowed: Integer {readOnly}
-maxMonthsAllowed: Integer {readOnly}

+{virtual} CanIssue(): Bool

FacultyMember

-maxBooksAllowed: Integer {readOnly}
-maxMonthsAllowed: Integer {readOnly}

+{virtual} CanIssue(): Bool

1
1
1
1

Issues
Reserves
Returns

0..2
0..6
0..10
0..4

LibraryClerk

#employeeID: Integer {id, readOnly}
#name: String {readOnly}
#penaltyRate: Integer {readOnly}

+AddBook(Book)
+DeleteBook(Book)
+ReturnBook(LibraryMember, Book)
+CollectPenalty(LibraryMember, Book)

Adds

Deletes

1

1

0..*

Book

-UID: Integer {id, readOnly}
-ISBN: String {readOnly}
-dateOfIssue: Date
-/dueDate: Date

*

Librarian

+reminder: Bool = False

+AddMember(LibraryMember)
+RemoveMember(LibraryMember)
+SendReminderToMembers()
+CheckBookIssueStats()
+DisposeBook()

1

1

Performs
Statistics

BookHandler{Singleton}

-currISBN: String
-currUID: Integer
-available: Integer[0..*]
-taken: Integer[0..*]
-waitList: Integer[0..*]
-readyToClaimUsers: ActiveReservation[0..*]
-readyToClaimUIDs: Integer[0..*]
-/numberOfBooks: Integer

+Create()
+OpenBook(Book)
+UpdateBook(Book)
+CloseBook()
+ReturnSelected(Integer)
+IssueSelected(Integer)
+ReserveSelected(Integer)

1

Update
Information
in
Database

1

1

ActiveReservation

+claimByDate: Date
+memberID: Integer