

Book Class & Model

The Book class has the following attributes:

title: The title of the book

author: The author of the book

isbn: The ISBN number of the book

Category/genre: The category/genre of the book

availability: The availability status of the book (True if the book is available, False if the book is borrowed)

The Book class has the following methods:

check_in(): Checks in the book, making it available for borrowing

check_out(): Checks out the book, making it unavailable for borrowing

User Class & Model

The User class has the following attributes:

name: The name of the user

id: The ID number of the user

type: The type of user (student, staff, faculty)

The User class has the following methods:

borrow_book(book): Borrows a book from the library

return_book(book): Returns a book to the library

Transaction Class & Model

The Transaction class has the following attributes:

user: The user who borrowed

the book: The book that was borrowed

The Transaction class has the following methods:

transaction_date: The date the book was borrowed

due_date: The date the book is due to be returned

calculate_fine(): Calculates the fine for the transaction, if any (Ugx 5,000 per day that passes)

book_status(): Returned, borrowed, damaged.

Here is an example of how the Transaction class can be used:

```
transaction = Transaction(user, book, transaction_date, due_date)
```

```
fine = transaction.calculate_fine()
```

we create a new Transaction object named transaction. We then calculate the fine for the transaction.

The Transaction class is an important part of the library management system. It allows us to track the borrowing and returning of books by users. It also allows us to calculate fines for overdue books.

Admin Class & Model

The Administrative class has the following attributes:

name: The name of the administrator

id: The ID number of the administrator

The Administrative class has the following methods:

`add_book()`: Adds a book to the library

`update_book()`: Updates the information about a book in the library

`remove_book()`: Removes a book from the library

`issue_book()`:

The Admin class is a subclass of the User class. This means that it inherits all of the attributes and methods of the User class.

The Admin class is an important part of the library management system. It allows administrators to add, update, and remove books from the library. It also allows them to perform other administrative tasks, such as generating reports and managing users.

Modules:

Book Information Recording: All the information about each book should be recorded into the system to provide the borrowers or the students with the book references that they want to borrow.

Administrator Login: The admin login will require the school librarian to have their email and password to have the main access to the system and secure every information and transaction done in the system.

Users/Borrowers' Login: This will also require the users or students email and password provided when they were registered into the system. Their email and password will serve as their access to the system in terms of borrowing books or inquiring about books.

Book Monitoring and Updates: The system should save the borrowers' info and the count of books that are borrowed. These records should also be updatable when the books are returned.

View and Check Information: The admin can view and check the books that are borrowed and who were the students that borrowed them. Students can also view their borrowing transactions just like the book information, date of book borrowing and returning.

Borrowing Information: The borrowing information should consist of the important details of the borrowers and the books borrowed by each borrower. This information should also record the day of borrowing as well as the day of the return of the book.

Borrowing Records: This will record all the transactions made and are stored for a period of time to serve as reference for important matters.