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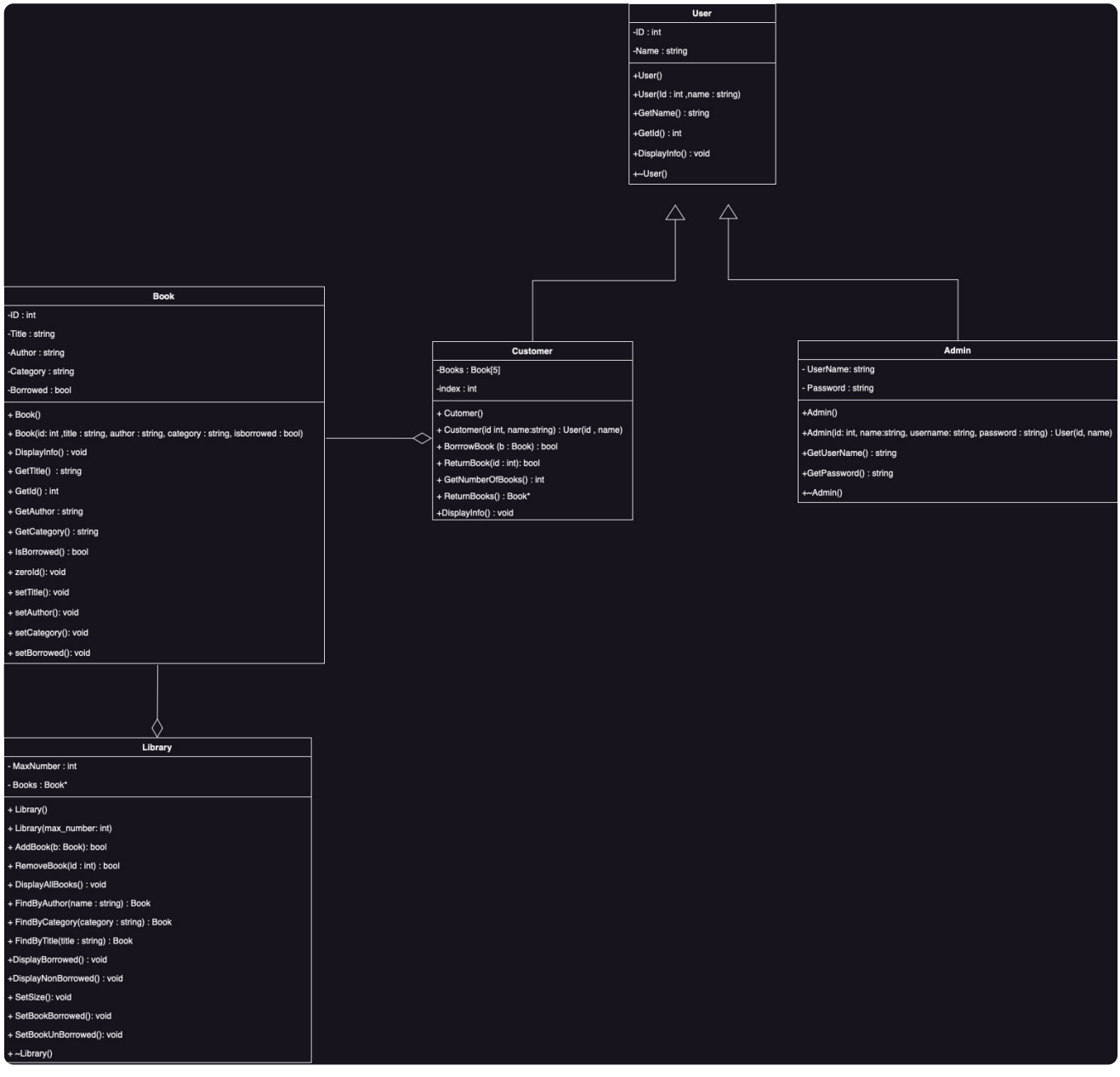
UML diagram for our project classes:



A brief description of each class we used along with its members:

-User Class:

Private members:

name: *a string to store the user's name.*
id: *an integer to store the user's id.*

Public members:

User(): *a default constructor for the class to set a default value for both name and id.*
User(string, int): *another constructor to set a value entered for both name and id.*
DisplayInfo(): *it displays both name and id to the user.*
GetId(): *it returns the id to its caller.*
GetName(): *it returns the name to its caller.*
~User(): *destructor.*

-Admin Class:

Private members:

username: *a string to store the admins's username.*
password: *a string to store the admins's password.*

Public members:

Admin(): a default constructor.
Admin(string name, int id, string username, string password): *a parametrized constructor to set an entered value for the private members of both Admin class and User class.*
GetPassword(): *returns the admin's password to the caller.*
GetUsername(): *returns the admin's username to the caller.*
~Admin(): *an object destructor.*

-Book Class:

Private members:

ID: *an integer for the book's id.*
title, author, category: *strings for the book's details such as its title, author and category.*
borrowed: *a boolean to check if it is borrowed.*

Public members:

Book(): *default constructor to set default values for the private members.*
Book(int id, string title, string author, string category, bool borrowed): *parameterized constructor to set entered values to the private members.*
setTitle(string): *set title attribute with an entered value.*
setAuthor(string): *set author attribute with an entered value.*
setCategory(string): *set category attribute with an entered value.*
setBorrowed(bool): *set borrowed attribute with an entered value.*
zeroId(): *sets the ID attribute to zero which helps to organize arrays of books in some cases outside the Book Class.*
displayInfo(): *displays all of the Book object's info.*
getTitle(): *returns the title of the book to the caller.*
getId(): *returns the id of the book to the caller.*
getAuthor(): *returns the author's name of the book to the caller.*
getCategory(): *returns the category of the book to the caller.*
isBorrowed(): returns a boolean to check whether the object is borrowed or not.

-Customer Class:

Private members:

book[5]: *an array of Book objects of size 5, to store the borrowed books.*

index: *an integer to indicate how many books the customer has borrowed.*

Public members:

Customer(): *a default constructor to set default values to the private members.*

Customer(string, int): *parameterized constructor to set the name and id attributes of the base Class (User Class).*

borrowBook(Book &): *to allow the customer to borrow a book from the library and to indicate that it has been borrowed.*

returnBook(int): *allows the customer to return a book he previously borrowed from the library.*

getNumberOfBooks(): *returns the number of the currently borrowed books by the customer.*

returnBooks(): *returns a pointer to an array of books.*

displayInfo(): *displays the details of the currently borrowed books by the customer.*

-Library Class:

Private members:

MaxNum: *the max number of books the library can hold.*

Book* Books: *a pointer to an array of all Book objects in the library.*

index: *the actual number of Book objects currently held in the library.*

Public members:

Library(): *default constructor.*

Library(int Size): *parameterized constructor to set MaxNum attribute and initialize Books array attribute.*

AddBook(Book b): *adds a new book to the library.*

RemoveBook(int id): *validates the Id of the book entered and removes it from the library (Books array).*

SetSize(int Size): *set a new MaxNum and resets the library.*

DisplayAllBooks(): *displays all books in the library.*

SetBookBorrowed(int id): *sets a book to borrowed condition.*

SetBookUnborrowed(int id): *sets a book to nonborrowed.*

FindByAuthor(string name): *finds a book by its author name.*

FindByCategory(string category): *finds a book by its category.*

FindByTitle(string title): *finds a book by its title.*

DisplayBorrorwed(): *displays borrowed books.*

DisplayNonBorrorwed(): *displays nonborrowed books.*

~Library(): *object destructor, also deletes the books array.*