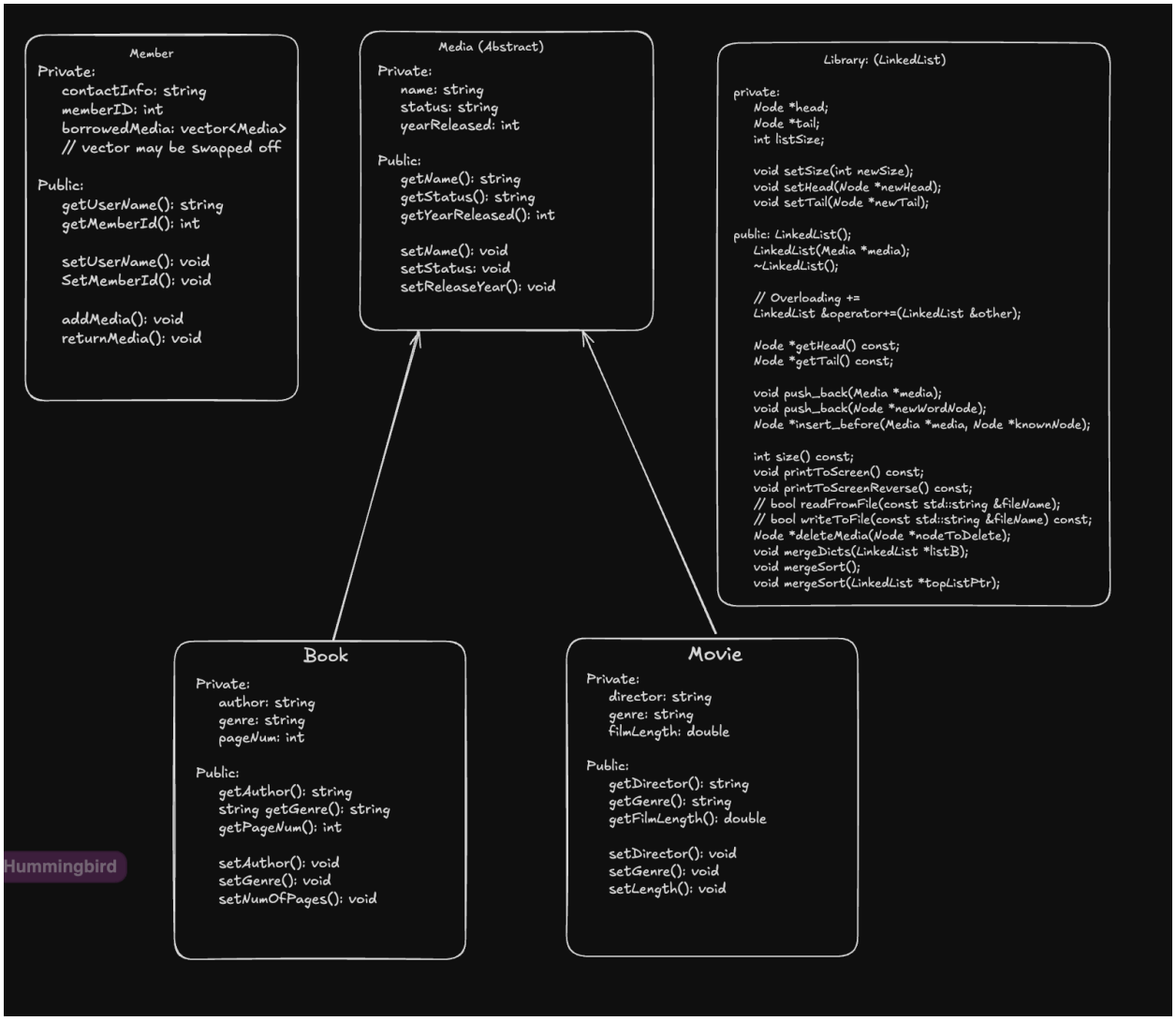
UML Diagram:



Description/summary of the program

The program we decided to make is a library system that consists of a member (or the user) has the ability to borrow various media (books and movies) from the library and return them back. The book and movie classes will inherit from the abstract media class and traits that will compose those items, such that each book and movie have a name, year, etc.
There will be communication when the member decides to borrow a certain piece of media, or return media they have back to the library.
We may use search algorithms for when the user wants to find a certain piece of media that the library may have, or sorting algorithms by release date, alphabetical by author or name of the media, or possibly the genre.

For now, the data structures we are using are vector and linked list. Due to having different types of media and media being the base class, we will have polymorphism instead of template classes.

Stages of development

We used object-oriented principles like inheritance to create different types of media, Book and Movie. We also implemented a custom LinkedList implementation and a Node data structure to keep track of the Media items. We also implemented the Member class which will represent users with attributes like ID, username and borrowed media. Our main.cpp file currently contains very basic functionality like adding books to a LinkedList.
Overall, we have build a great foundation for our project. We implemented core functionality including constructors and other methods for adding media to our linked list. We also have very clear relationships between classes.
Future stages of development will focus on adding functionality and improving the quality of our program. We plan on implementing more advanced features like searching, editing and deleting different media items. We also plan on creating unit testing to ensure our program is bug free and runs smoothly.