



## **Report For**

# **Library Management System**

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## **Introduction :**

In the ever-evolving landscape of information management, the need for streamlined library operations has become paramount. This report unveils a technological solution—our Desktop Library Management System. Developed to address the challenges faced by librarians and staff, this application redefines the management of books, students, and transactions within a library setting. With a focus on efficiency, accessibility, and user experience, our system offers a comprehensive toolkit for modern library. This introduction provides a glimpse into the purpose, scope, and significance of our Library Management System, offering a foundation for the detailed exploration that follows.

## **Problem Description :**

Many of the librarians are facing the same problem, Which is writing the library log in library notebook or other paper method.

Saving data on papers have many disadvantages like :

- A- Loss of data which causes loss of resources and money.
- B- Searching is harder than on program which causes loss of time.
- C- It makes the Job of the librarians more difficult.

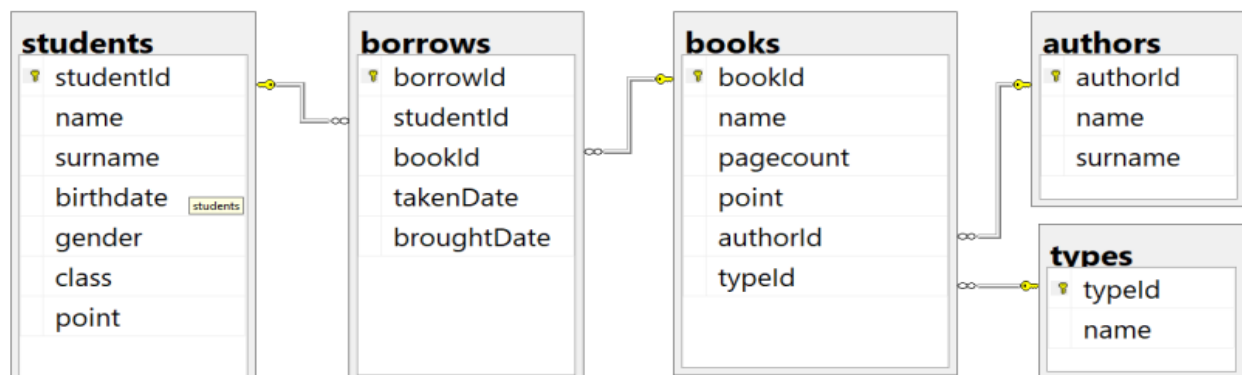
Our application solves all these problem.

## Proposed Solution :

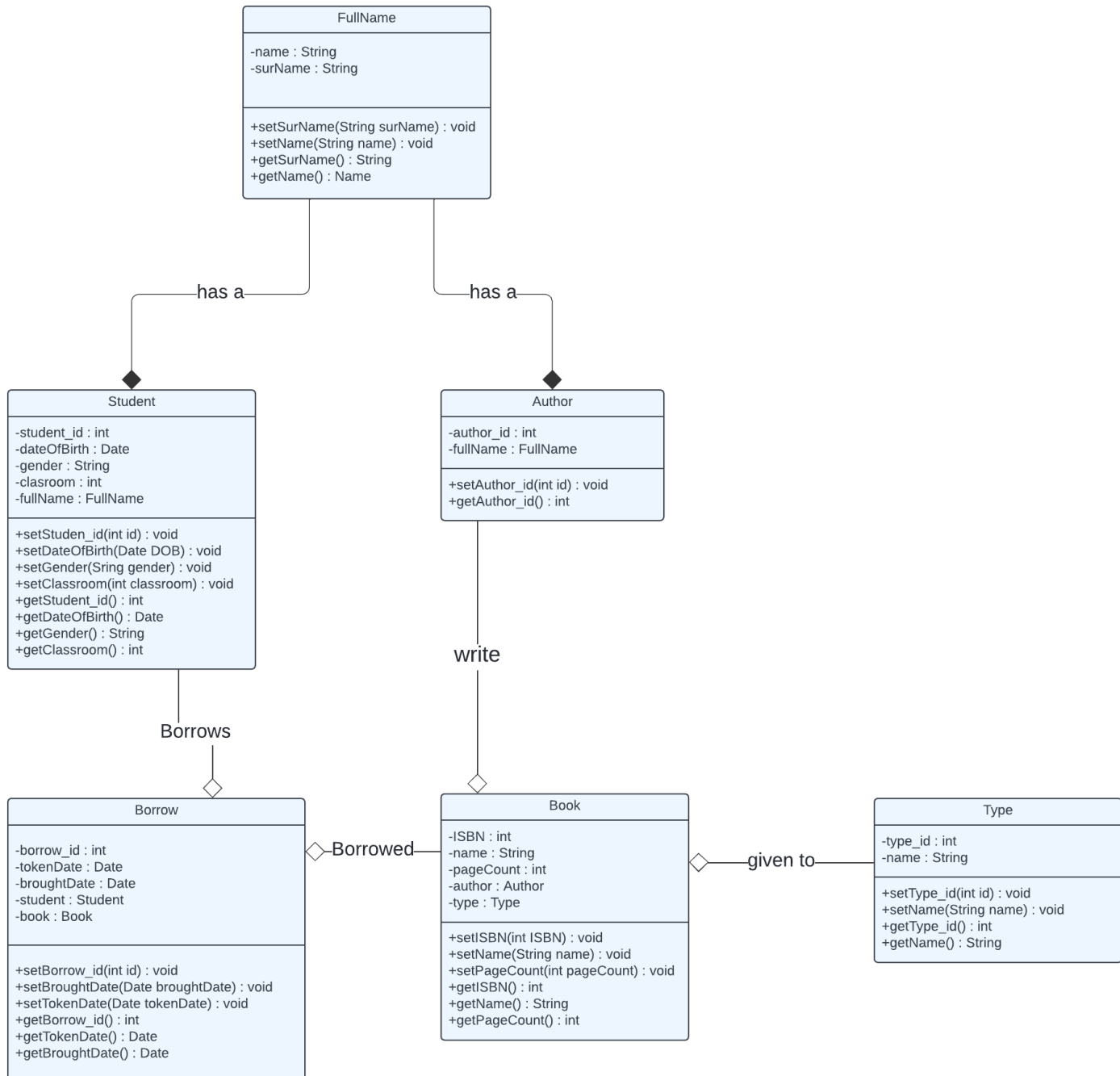
Our Program is developed to solve the mentioned problems with fast , advanced and responsive interface that is designed to make the librarians easier by :

- A- Capability of searching on the borrowed books by their ISBN and books that should be brought today by the students who borrowed them which make it easier than searching for them in a notebook and going throw It's pages.
- B- Capability of adding new books and searching for them by their names or ISBN which saves the librarians from the manual searching and saves their time.
- C- Capability of adding or deleting students which makes the program valid for every year's students and the librarians are capable of searching on students by their names or even there ID's.
- D- Capability of adding or deleting authors which makes the program valid for adding the upcoming authors and searching on them by their names or ID's.

## Database Diagram :



## UML class diagram :



## **Project conclusion :**

The project is developed to meet modern specifications and apply most of the OOP terminologies :

- A- Encapsulation : all the classes uses gettes and settes to make the data safe and make the architecture of the project unknown for the user.
- B- Polymorphism: there are many methods that have been overloaded to meet the different requirements.
- C- Aggregation: classes like “ Borrow , Book and Type “ applies the aggregation terminology.
- D- Scalability : the project are divided into three types of classes (controller , main class and database class ) to make the project scalable.
- E- Maintainability : every block of code are set into a method to make the code readable and easy to maintain .

## **How to use :**

In the starting of the project you'll find the home page which allows you to move into the different pages of the project .

Every page contains a button leads to main menu to make it easy to move between the different pages .

Every page contains the Appropriate GUI to help you to add or delete a new record to the database and to search on different elements in the database.