

## **Library Book Management System**

Objective: Create a Python program to manage a collection of books in a library. The system should allow adding new books, updating book details, removing books, searching for books, and displaying all books.

### **Setup and Basics**

#### **Bader Alsumait**

1. Initialize Book Collection - Create an empty list to store book information.
2. Book Information Structure - Define how book information will be stored (e.g., a dictionary with keys like 'title', 'author', 'ISBN', 'year', 'copies').

#### **Chloe Bright**

3. Add a Book - Write a function to add a new book to the collection.
4. Display All Books - Write a function to print out all books in the collection.

### **Enhancing Book Management**

#### **William Christian**

5. Search for a Book by Title - Implement a search function that looks for books by title.
6. Remove a Book - Write a function to remove a book from the collection by its ISBN.

#### **Sarah Douglass**

7. Update Book Information - Create a function to update details of a book given its ISBN.
8. Count Books - Write a function to count the total number of books in the collection.

#### **Caio DaSilva**

9. List Books by an Author - Implement a function to list all books by a specific author.

### **Advanced Features**

10. Check Out a Book - Add functionality to check out a book, decrementing its 'copies' count.

#### **Sahithi Gollakota**

11. Return a Book - Implement functionality to return a book, incrementing its 'copies' count.

12. Search by Author - Enhance the search function to allow searching by author.

### **Noah Goodman**

13. Search by Year - Add a feature to search for books published in a specific year.

14. List All Authors - Write a function that lists all unique authors in the collection.

### **Alexander Hunt**

#### **Data Persistence**

15. Save Collection to File - Implement a function to save the current state of the book collection to a file.

### **William Jappe**

16. Load Collection from File - Write a function to load the book collection from a file.

### **Emma Malabanan**

#### **Additional Challenges**

19. Sort Books by Title - Write a function that returns a list of books sorted by title.

20. Unique ISBN Check - Ensure that no two books have the same ISBN when adding or updating books.

### **Julian Richa**

21. Book Recommendation - Implement a simple recommendation feature that suggests a book based on a given author or year.

22. Total Copies Count - Write a function that calculates the total number of book copies in the library.

### **Zofia Skrajnowska**

23. Most Published Author - Determine which author has the most books in the collection.

24. Filter Books by Year Range - Create a function to display books published within a specific year range.

### **Jack Sweeney**

25. Longest Book Title - Find the book with the longest title in the collection.

**Jingpeng Zhang**

26. Backup Collection - Implement a feature to create a backup of the book collection to a separate file.