

Assignment 7

Title: Building a Library Management System

Description:

You have been assigned to create a basic Library Management System (LMS) for a local library. The LMS will help librarians manage books and patrons efficiently. Your task is to implement various functions to handle different aspects of the Library Management System.

Instructions:

1. Implement the **add_book** function:

Create a function called `add_book` that takes four parameters:

- `books_list`: A list containing existing book titles (strings).
- `book_title`: A string representing the title of the new book to add.
- `book_author`: A string representing the author of the new book.
- `book_id`: An integer representing the unique ID of the new book.

The function should add the new book information (title, author, and ID) to the `books_list` and return the updated list. Make sure to check if the ID is unique and not already present in the list.

2. Implement the **remove_book** function:

Create a function called `remove_book` that takes two parameters:

- `books_list`: A list containing existing book titles (strings).
- `book_id`: An integer representing the ID of the book to be removed.

The function should remove the book with the given ID from the `books_list` and return the updated list. If the book with the provided ID does not exist, display an appropriate message.

3. Implement the **search_book_by_author** function:

Create a function called `search_book_by_author` that takes two parameters:

- `books_list`: A list containing existing book titles (strings).
- `author_name`: A string representing the author's name to search for.

The function should return a list of book titles (strings) written by the provided author. If no books are found, return an empty list.

Note: You are free to use any Python data structure to implement the Library Management System. However, using dictionaries or classes might make the implementation more structured and efficient. You are also encouraged to write helper functions if needed.

Remember to comment your code for clarity and use meaningful variable names throughout your implementation.