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import java.util.Scanner;

class Book {
    int id;
    String title;
    String author;
    boolean issued;
    Book next;

    public Book(int id, String title, String author) {
        this.id = id;
        this.title = title;
        this.author = author;
        this.issued = false;
        this.next = null;
    }
}

class Library {
    Book head = null;

    void addBook(int id, String title, String author) {
        Book newBook = new Book(id, title, author);
        if (head == null) {
            head = newBook;
        } else {
            Book temp = head;
            while (temp.next != null) {
                temp = temp.next;
            }
            temp.next = newBook;
        }
        System.out.println("Book added successfully!");
    }

    void issueBook(int id) {
        Book temp = head;
        while (temp != null) {
            if (temp.id == id) {
                if (temp.issued) {
                    System.out.println("Book already issued!");
                    return;
                }
                temp.issued = true;
                System.out.println("Book issued successfully!");
                return;
            }
            temp = temp.next;
        }
        System.out.println("Book not found!");
    }

    void displayBooks() {
        if (head == null) {
            System.out.println("No books in the library.");
            return;
        }

        Book temp = head;
        System.out.println("----- Library Books -----");
        while (temp != null) {
            System.out.println("ID: " + temp.id);
            System.out.println("Title: " + temp.title);
            System.out.println("Author: " + temp.author);
            System.out.println("Status: " + (temp.issued ? "Issued" : "Available"));
            System.out.println("-----");
            temp = temp.next;
        }
    }

    void searchBook(int id) {
        Book temp = head;

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        while (temp != null) {
            if (temp.id == id) {
                System.out.println("Book Found!");
                System.out.println("ID: " + temp.id);
                System.out.println("Title: " + temp.title);
                System.out.println("Author: " + temp.author);
                System.out.println("Status: " + (temp.issued ? "Issued" : "Available"));
                return;
            }
            temp = temp.next;
        }
        System.out.println("Book not found!");
    }

public class LibrarySystem {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Library library = new Library();
        int choice;

        do {
            System.out.println("===== Library Book Issuing System =====");
            System.out.println("1. Add New Book");
            System.out.println("2. Issue Book");
            System.out.println("3. Display All Books");
            System.out.println("4. Search Book");
            System.out.println("5. Exit");
            System.out.print("Enter your choice: ");
            choice = sc.nextInt();
            sc.nextLine();

            switch (choice) {
                case 1:
                    System.out.print("Enter Book ID: ");
                    int id = sc.nextInt();
                    sc.nextLine();
                    System.out.print("Enter Book Title: ");
                    String title = sc.nextLine();
                    System.out.print("Enter Author Name: ");
                    String author = sc.nextLine();
                    library.addBook(id, title, author);
                    break;

                case 2:
                    System.out.print("Enter Book ID to issue: ");
                    int issueId = sc.nextInt();
                    library.issueBook(issueId);
                    break;

                case 3:
                    library.displayBooks();
                    break;

                case 4:
                    System.out.print("Enter Book ID to search: ");
                    int searchId = sc.nextInt();
                    library.searchBook(searchId);
                    break;

                case 5:
                    System.out.println("Exiting system. Goodbye!");
                    break;

                default:
                    System.out.println("Invalid choice. Try again!");
            }
        } while (choice != 5);

        sc.close();
    }
}

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