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import java.io.*;
import java.util.*;

class Book {
    private String title;
    private String author;
    private int id;

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

    public String getTitle() {
        return title;
    }

    public String getAuthor() {
        return author;
    }

    public int getId() {
        return id;
    }

    @Override
    public String toString() {
        return "Book{" +
            "title=" + title + "\" +
            ", author=" + author + "\" +
            ", id=" + id +
            "}";
    }
}

class Library {
    private ArrayList<Book> books;
    private String filename;

    public Library(String filename) {
        this.filename = filename;
        this.books = new ArrayList<>();
    }

    public void addBook(Book book) {
        books.add(book);
    }
}

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public void removeBook(int id) {
    books.removeIf(book -> book.getId() == id);
}

public Book searchBook(int id) {
    for (Book book : books) {
        if (book.getId() == id) {
            return book;
        }
    }
    return null;
}

public void displayBooks() {
    System.out.println("Books in the library:");
    for (Book book : books) {
        System.out.println(book);
    }
}

public void saveBooksToFile() {
    try (FileOutputStream fos = new FileOutputStream(filename);
        ObjectOutputStream oos = new ObjectOutputStream(fos)) {
        oos.writeObject(books);
        System.out.println("Books saved to file.");
    } catch (IOException e) {
        e.printStackTrace();
    }
}

public void loadBooksFromFile() {
    try (FileInputStream fis = new FileInputStream(filename);
        ObjectInputStream ois = new ObjectInputStream(fis)) {
        books = (ArrayList<Book>) ois.readObject();
        System.out.println("Books loaded from file.");
    } catch (IOException | ClassNotFoundException e) {
        e.printStackTrace();
    }
}

public class LibraryManagementSystem {
    public static void main(String[] args) {
        Library library = new Library("library.ser");
        library.loadBooksFromFile();

        Scanner scanner = new Scanner(System.in);
    }
}

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int choice;

do {
    System.out.println("Library Management System");
    System.out.println("=====");
    System.out.println("1. Add Book");
    System.out.println("2. Remove Book");
    System.out.println("3. Search Book");
    System.out.println("4. Display Books");
    System.out.println("5. Save Books to File");
    System.out.println("6. Load Books from File");
    System.out.println("0. Exit");
    System.out.print("Enter your choice: ");
    choice = scanner.nextInt();
    scanner.nextLine();

    switch (choice) {
        case 1:
            System.out.print("Enter book title: ");
            String title = scanner.nextLine();
            System.out.print("Enter book author: ");
            String author = scanner.nextLine();
            System.out.print("Enter book ID: ");
            int id = scanner.nextInt();
            scanner.nextLine();

            Book book = new Book(title, author, id);
            library.addBook(book);
            System.out.println("Book added successfully.");
            break;

        case 2:
            System.out.print("Enter book ID to remove: ");
            int idToRemove = scanner.nextInt();
            scanner.nextLine();

            library.removeBook(idToRemove);
            System.out.println("Book removed successfully.");
            break;

        case 3:
            System.out.print("Enter book ID to search: ");
            int idToSearch = scanner.nextInt();
            scanner.nextLine();

            Book foundBook = library.searchBook(idToSearch);
            if (foundBook != null) {
                System.out.println("Book found: " + foundBook);
            } else {
                System.out.println("Book not found.");
            }
        }
    }
}

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        }
        break;
    case 4:
        library.displayBooks();
        break;
    case 5:
        library.saveBooksToFile();
        break;
    case 6:
        library.loadBooksFromFile();
        break;
    case 0:
        System.out.println("Exiting...");
        break;
    default:
        System.out.println("Invalid choice. Please try again.");
        break;
    }
} while (choice != 0);

scanner.close();
}
}
```