import java.util.ArrayList;

import java.util.Scanner;

public class LibrarySystem {

// Book class

static class Book {

private String title, author, isbn;

private boolean isAvailable = true;

public Book(String title, String author, String isbn) {

this.title = title;

this.author = author;

this.isbn = isbn;

}

public String getTitle() { return title; }

public boolean isAvailable() { return isAvailable; }

public void borrow() { isAvailable = false; }

public void returnBook() { isAvailable = true; }

public String toString() {

return title + " by " + author + " (ISBN: " + isbn + ")";

}

}

// Member class

static class Member {

private String name;

private ArrayList<Book> borrowedBooks = new ArrayList<>();

public Member(String name) {

this.name = name;

}

public void borrowBook(Book book) {

if (book != null && book.isAvailable()) {

borrowedBooks.add(book);

book.borrow();

System.out.println(name + " borrowed: " + book.getTitle());

} else {

System.out.println("Book is not available.");

}

}

public void returnBook(Book book) {

if (borrowedBooks.remove(book)) {

book.returnBook();

System.out.println(name + " returned: " + book.getTitle());

} else {

System.out.println("This book was not borrowed.");

}

}

}

// Librarian class

static class Librarian {

public void addBook(Library library, Book book) {

library.addBook(book);

System.out.println("Book added: " + book);

}

}

// Library class

static class Library {

private ArrayList<Book> books = new ArrayList<>();

public void addBook(Book book) {

books.add(book);

}

public Book searchBook(String title) {

for (Book book : books) {

if (book.getTitle().equalsIgnoreCase(title)) {

return book;

}

}

return null;

}

public void listBooks() {

System.out.println("\nLibrary Catalog:");

for (Book book : books) {

System.out.println(book + " - " + (book.isAvailable() ? "Available" : "Borrowed"));

}

}

}

// Main method

public static void main(String[] args) {

Library library = new Library();

Librarian librarian = new Librarian();

Member member = new Member("Alice");

// Add sample books

librarian.addBook(library, new Book("1984", "George Orwell", "111"));

librarian.addBook(library, new Book("Java Basics", "John Smith", "222"));

librarian.addBook(library, new Book("Digital Logic", "Jane Doe", "333"));

Scanner scanner = new Scanner(System.in);

while (true) {

System.out.println("\n--- Library Menu ---");

System.out.println("1. List Books");

System.out.println("2. Borrow Book");

System.out.println("3. Return Book");

System.out.println("4. Exit");

System.out.print("Choose option: ");

int choice = scanner.nextInt();

scanner.nextLine(); // consume newline

switch (choice) {

case 1:

library.listBooks();

break;

case 2:

System.out.print("Enter book title to borrow: ");

String title = scanner.nextLine();

Book bookToBorrow = library.searchBook(title);

member.borrowBook(bookToBorrow);

break;

case 3:

System.out.print("Enter book title to return: ");

String returnTitle = scanner.nextLine();

Book bookToReturn = library.searchBook(returnTitle);

member.returnBook(bookToReturn);

break;

case 4:

System.out.println("Exiting... Goodbye!");

return;

default:

System.out.println("Invalid option.");

}

       }

    }

}