import java.util.\*;

public class LibraryManagement {

private static Scanner scanner = new Scanner(System.in);

private static Map<String, String> librarians = new HashMap<>(); // Stores librarian credentials

private static Map<String, Map<String, String>> books = new HashMap<>(); // Stores books with ISBN as key and details as value

private static List<Map<String, String>> members = new ArrayList<>(); // Stores member details

private static List<Map<String, String>> issuedBooks = new ArrayList<>(); // Stores issued book details

public static void main(String[] args) {

// Adding a default librarian for login

librarians.put("admin", "password");

if (validateLibrarian()) {

menu();

} else {

System.out.println("Invalid credentials. Please try again.");

}

}

private static boolean validateLibrarian() {

System.out.println("Enter librarian username:");

String username = scanner.nextLine();

System.out.println("Enter librarian password:");

String password = scanner.nextLine();

return librarians.containsKey(username) && librarians.get(username).equals(password);

}

private static void menu() {

while (true) {

System.out.println("\nLibrary Management Menu:");

System.out.println("1. Add a Book");

System.out.println("2. Display Books");

System.out.println("3. Issue a Book");

System.out.println("4. Return a Book");

System.out.println("5. Add Librarian");

System.out.println("6. Remove Librarian");

System.out.println("7. Add Member");

System.out.println("8. Display Members");

System.out.println("9. Display Librarians");

System.out.println("10. Remove a Book");

System.out.println("11. Exit");

System.out.print("Enter your choice: ");

int choice = scanner.nextInt();

scanner.nextLine(); // Consume the newline

switch (choice) {

case 1:

addBook();

break;

case 2:

displayBooks();

break;

case 3:

issueBook();

break;

case 4:

returnBook();

break;

case 5:

addLibrarian();

break;

case 6:

removeLibrarian();

break;

case 7:

addMember();

break;

case 8:

displayMembers();

break;

case 9:

displayLibrarians();

break;

case 10:

removeBook();

break;

case 11:

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

return;

default:

System.out.println("Invalid choice. Please try again.");

}

}

}

private static void addBook() {

System.out.println("Enter the ISBN of the book:");

String isbn = scanner.nextLine();

System.out.println("Enter the name of the book:");

String bookName = scanner.nextLine();

System.out.println("Enter the author of the book:");

String author = scanner.nextLine();

Map<String, String> bookDetails = new HashMap<>();

bookDetails.put("name", bookName);

bookDetails.put("author", author);

books.put(isbn, bookDetails);

System.out.println("Book added successfully.");

}

private static void displayBooks() {

if (books.isEmpty()) {

System.out.println("No books available in the library.");

} else {

System.out.println("Books in the library:");

for (Map.Entry<String, Map<String, String>> entry : books.entrySet()) {

String isbn = entry.getKey();

Map<String, String> details = entry.getValue();

System.out.println("ISBN: " + isbn + ", Name: " + details.get("name") + ", Author: " + details.get("author"));

}

}

}

private static void issueBook() {

System.out.println("Enter the ISBN of the book to issue:");

String isbn = scanner.nextLine();

if (books.containsKey(isbn)) {

System.out.println("Enter the member name:");

String memberName = scanner.nextLine();

System.out.println("Enter the member ID:");

String memberId = scanner.nextLine();

System.out.println("Enter the issue date (YYYY-MM-DD):");

String issueDate = scanner.nextLine();

System.out.println("Enter the expected return date (YYYY-MM-DD):");

String returnDate = scanner.nextLine();

Map<String, String> issuedBook = new HashMap<>();

issuedBook.put("isbn", isbn);

issuedBook.put("memberName", memberName);

issuedBook.put("memberId", memberId);

issuedBook.put("issueDate", issueDate);

issuedBook.put("returnDate", returnDate);

issuedBooks.add(issuedBook);

books.remove(isbn);

System.out.println("Book issued successfully.");

} else {

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

}

}

private static void returnBook() {

System.out.println("Enter the ISBN of the book to return:");

String isbn = scanner.nextLine();

System.out.println("Enter the name of the book:");

String bookName = scanner.nextLine();

System.out.println("Enter the author of the book:");

String author = scanner.nextLine();

Map<String, String> bookDetails = new HashMap<>();

bookDetails.put("name", bookName);

bookDetails.put("author", author);

books.put(isbn, bookDetails);

System.out.println("Book returned successfully.");

}

private static void addLibrarian() {

System.out.println("Enter new librarian username:");

String username = scanner.nextLine();

System.out.println("Enter new librarian password:");

String password = scanner.nextLine();

librarians.put(username, password);

System.out.println("Librarian added successfully.");

}

private static void removeLibrarian() {

System.out.println("Enter the username of the librarian to remove:");

String username = scanner.nextLine();

if (librarians.containsKey(username)) {

librarians.remove(username);

System.out.println("Librarian removed successfully.");

} else {

System.out.println("Librarian not found.");

}

}

private static void addMember() {

System.out.println("Enter the name of the member:");

String memberName = scanner.nextLine();

System.out.println("Enter the contact number of the member:");

String contactNumber = scanner.nextLine();

System.out.println("Enter the ID number of the member:");

String memberId = scanner.nextLine();

Map<String, String> memberDetails = new HashMap<>();

memberDetails.put("name", memberName);

memberDetails.put("contact", contactNumber);

memberDetails.put("id", memberId);

members.add(memberDetails);

System.out.println("Member added successfully.");

}

private static void displayMembers() {

if (members.isEmpty()) {

System.out.println("No members available.");

} else {

System.out.println("Library Members:");

for (Map<String, String> member : members) {

System.out.println("Name: " + member.get("name") + ", Contact: " + member.get("contact") + ", ID: " + member.get("id"));

}

}

}

private static void displayLibrarians() {

System.out.println("List of Librarians:");

for (String username : librarians.keySet()) {

System.out.println(username);

}

}

private static void removeBook() {

System.out.println("Enter the ISBN of the book to remove:");

String isbn = scanner.nextLine();

if (books.remove(isbn) != null) {

System.out.println("Book removed successfully.");

} else {

System.out.println("Book not found.");

}

}

}