NAME:R.RAKESH

REG-NO:231401502

OOPS WITH JAVA

MINI PROJECT-LIBARARY MANAGEMENT SYSTEM

Library Management System

Program:

```
import java.util.*;

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

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

    public int getId() {
        return id;
    }

    public String getTitle() {
        return title;
    }

    public String getAuthor() {
        return author;
    }
```

```
    public boolean isAvailable() {
        return isAvailable;
    }

    public void borrow() {
        if (isAvailable) {
            isAvailable = false;
        } else {
            System.out.println("Book is already borrowed.");
        }
    }

    public void returnBook() {
        isAvailable = true;
    }

    @Override
    public String toString() {
        return "ID: " + id + ", Title: " + title + ", Author: " + author +
               ", Available: " + (isAvailable ? "Yes" : "No");
    }
}

class Library {
    private Map<Integer, Book> books = new HashMap<>();

    public void addBook(Book book) {
        books.put(book.getId(), book);
    }
```

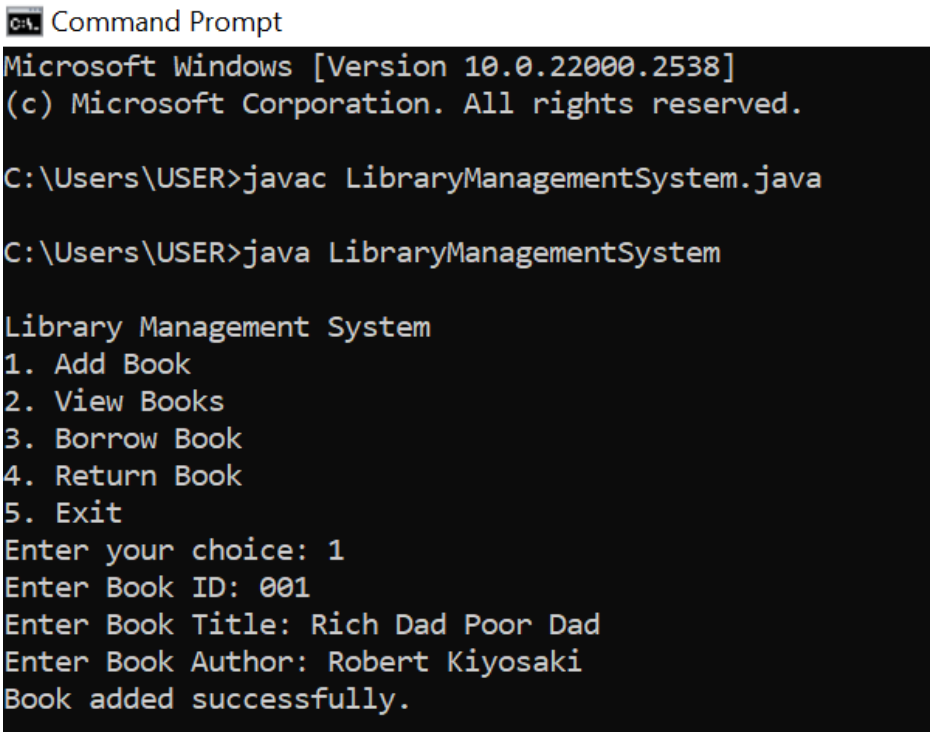
```
public void viewBooks() {
    if (books.isEmpty()) {
        System.out.println("No books in the library.");
        return;
    }
    for (Book book : books.values()) {
        System.out.println(book);
    }
}

public void borrowBook(int bookId) {
    Book book = books.get(bookId);
    if (book != null && book.isAvailable()) {
        book.borrow();
        System.out.println("You borrowed the book: " + book.getTitle());
    } else if (book != null) {
        System.out.println("Sorry, the book is not available.");
    } else {
        System.out.println("Book not found.");
    }
}

public void returnBook(int bookId) {
    Book book = books.get(bookId);
    if (book != null && !book.isAvailable()) {
        book.returnBook();
        System.out.println("You returned the book: " + book.getTitle());
    } else if (book != null) {
        System.out.println("The book was not borrowed.");
```

```
        } else {
            System.out.println("Book not found.");
        }
    }
}

public class LibraryManagementSystem {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        Library library = new Library();

        while (true) {
            System.out.println("\nLibrary Management System");
            System.out.println("1. Add Book");
            System.out.println("2. View Books");
            System.out.println("3. Borrow Book");
            System.out.println("4. Return Book");
            System.out.println("5. Exit");
            System.out.print("Enter your choice: ");

            int choice = scanner.nextInt();
            scanner.nextLine(); // Consume newline

            switch (choice) {
                case 1:
                    System.out.print("Enter Book ID: ");
                    int id = scanner.nextInt();
                    scanner.nextLine(); // Consume newline

                    System.out.print("Enter Book Title: ");
```

```
            String title = scanner.nextLine();

            System.out.print("Enter Book Author: ");
            String author = scanner.nextLine();

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

        case 2:
            library.viewBooks();
            break;

        case 3:
            System.out.print("Enter Book ID to borrow: ");
            int borrowId = scanner.nextInt();
            library.borrowBook(borrowId);
            break;

        case 4:
            System.out.print("Enter Book ID to return: ");
            int returnId = scanner.nextInt();
            library.returnBook(returnId);
            break;

        case 5:
            System.out.println("Exiting...");
            scanner.close();
            return;
```

```
            default:
                System.out.println("Invalid choice. Please try again.");
        }
    }
  }
}
```

OUTPUT:



```
Library Management System
1. Add Book
2. View Books
3. Borrow Book
4. Return Book
5. Exit
Enter your choice: 2
ID: 1, Title: Rich Dad Poor Dad, Author: Robert Kiyosaki, Available: Yes

Library Management System
1. Add Book
2. View Books
3. Borrow Book
4. Return Book
5. Exit
Enter your choice: 3
Enter Book ID to borrow: 1
You borrowed the book: Rich Dad Poor Dad
```

```
Library Management System
1. Add Book
2. View Books
3. Borrow Book
4. Return Book
5. Exit
Enter your choice: 4
Enter Book ID to return: 1
You returned the book: Rich Dad Poor Dad

Library Management System
1. Add Book
2. View Books
3. Borrow Book
4. Return Book
5. Exit
Enter your choice: 5
Exiting...
```