**Description of the System Code for the Java Library**

**1. Statements of Import**  
The application supports input handling and data management by utilizing the built-in Java libraries:  
Map: An interface for assigning values to keys.  
Scanner: To read input from users.  
TreeMap: A map that has been sorted to arrange books according to their titles.  
  
**2. Book a class**  
four attributes are used to define a book object: title, author, quantity, and description. When a book is added, these fields are initialized by the constructor.  
  
3. Main Driver for Library System Class  
all library operations are contained in this main class, which also controls user-system interaction.

## 4. Global Variables

- Library: All book objects keyed by lowercase titles are stored in a Tree Map.   
-scanner: An object that scans for user input.

## 5. main() Method

Shows the main menu and iterates through the options selected by the user, executing various methods according to the input until the user leaves.

## 6. printMenu()

Shows a menu with choices to view the total value of the library, add, borrow, and return books. Colors make text easier to read.

## 7. getUserChoice()

Makes sure a number between 1 and 5 is entered by validating user input. If incorrect input is entered, it prompts again.

## 8. addBooks()

Asks the user for the book's details. It modifies the quantity if the book is already in existence. It adds a new entry if it's new.

## 9. getValidQuantity()

Makes sure that only legitimate numbers are entered for the number of books. Loops until it receives a valid input.

## 10. borrowBooks()

Manages the borrowing logic by determining whether a book is available and whether there are enough copies, after which the library is updated.

## 11. returnBooks()

Logic for returns is handled by first confirming that the book is from the library, then updating the quantity and confirming the return.

## 12. displayLibraryValue()

Determines the total worth of all the library's books. Five units are assigned to each book.

## Console Colors

Uses ANSI escape codes to enhance console output with color:  
- Blue: Menus  
- Cyan: Prompts  
- Green: Success  
- Red: Errors  
- Yellow: Warnings  
- Purple: Value display

## Summary of Features

- Object-Oriented design using a Book class  
- TreeMap for auto-sorting  
- Menu-driven interface  
- Input validation  
- Color-coded console UI  
- Robust error handling