

Assignment → 4

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

class Book implements Comparable<Book> {
    int BookID;
    String title;
    String author;
    String category;
    boolean isIssued;

    public int compareTo(Book other) {
        return this.title.compareTo(other.title);
    }

    void validateID() throws InvalidException {
        if (BookID <= 0) {
            throw new InvalidException();
        }
    }

    void displayBookDetails() {
        System.out.println("ID: " + BookID);
        System.out.println("Title: " + title);
        System.out.println("Author: " + author);
        System.out.println("Category: " + category);
        System.out.println("Status: " + (isIssued ? "Issued" : "Available"));
        System.out.println("-----");
    }

    class InvalidException extends Exception {
        InvalidException() {
            System.out.println("Error: Book ID must be a positive number");
        }
    }
}
```

```
class LibraryManager {
```

```
    Scanner sc = new Scanner(System.in);
```

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

```
    void addBook() {
```

```
        try {
```

```
            System.out.println("Enter Book ID:");
```

```
            int id = sc.nextInt();
```

```
            sc.nextLine();
```

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

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

```
            System.out.println("Enter Author:");
```

```
            String author = sc.nextLine();
```

```
            System.out.println("Enter Category:");
```

```
            String category = sc.nextLine();
```

```
            System.out.println("Enter
```

```
            Book obj = new Book();
```

```
            obj.bookId = id;
```

```
            obj.title = title;
```

```
            obj.author = author;
```

```
            obj.category = category;
```

```
            obj.isIssued = false;
```

```
            obj.validateId();
```

```
            books.add(obj);
```

```
            saveToFile(obj);
```

```
            System.out.println("Error: Invalid input. Please
```

```
            System.out.println("Book added and saved to file  
            successfully!");
```

```
        }
```

```
        catch (InvalidIDException e) {
```

```
        }
```

```
        catch (Exception e) {
```

```
            System.out.println("Error: Invalid input. Please Enter number  
            for ID.");
```



```
void mainMenu() {
```

```
while (true) {
```

```
    System.out.println("==== City Library Management System ===");
```

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

```
    System.out.println("2. Search Book");
```

```
    System.out.println("3. Sort Book");
```

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

```
    System.out.println("Enter your choice: ");
```

```
    int n = sc.nextInt();
```

```
    if (n == 1) {
```

```
        addBook();
```

```
    }
```

```
    if (n == 2) {
```

```
        showBookDetails();
```

```
    }
```

```
    if (n == 3) {
```

```
        sortBooks();
```

```
    }
```

```
    if (n == 4) {
```

```
        System.out.println("Exiting System. Thank You!");
```

```
        break;
```

```
    }
```

```
 }
```

```
}
```

```
class Assign4 {
```

```
    public static void main(String[] args) {
```

```
        LibraryManager obj1 = new LibraryManager();
```

```
        obj1.mainMenu();
```

```
    }
```

```
}
```