Assignment Number: 04

NAME – SHASHANK TYAGI

ROLL NO – 2401201033

COURSE- BCA(AI&DS)

CODE –

Main.java 2

C: > Users > tyagi > OneDrive > Desktop > CityLibraryFixed > Main.java > ...

```java
import java.util.*;
public class Main {
    Run main | Debug main | Run | Debug
    public static void main(String[] args) {
        LibraryManager lm = new LibraryManager();
        lm.loadFromFile();
        Scanner sc = new Scanner(System.in);
        while (true) {
            System.out.println(x: "1 Add Book");
            System.out.println(x: "2 Add Member");
            System.out.println(x: "3 Issue Book");
            System.out.println(x: "4 Return Book");
            System.out.println(x: "5 Search Books");
            System.out.println(x: "6 Sort Books");
            System.out.println(x: "7 Exit");
            System.out.print(s: "Enter your choice: ");
            int c = Integer.parseInt(sc.nextLine());
            if (c == 1) {
                System.out.print(s: "Enter Book ID: ");
                int id = Integer.parseInt(sc.nextLine());
                System.out.print(s: "Enter Title: ");
                String t = sc.nextLine();
                System.out.print(s: "Enter Author: ");
                String a = sc.nextLine();
                System.out.print(s: "Enter Category: ");
                String cat = sc.nextLine();
                lm.addBook(id, t, a, cat);
            } else if (c == 2) {
                System.out.print(s: "Enter Member ID: ");
                int id = Integer.parseInt(sc.nextLine());
                System.out.print(s: "Enter Name: ");
                String n = sc.nextLine();
                System.out.print(s: "Enter Email: ");
                String e = sc.nextLine();
                lm.addMember(id, n, e);
            } else if (c == 3) {
                System.out.print(s: "Enter Book ID: ");
```

Main.java 2

C: > Users > tyagi > OneDrive > Desktop > CityLibraryFixed > Main.java > ...

```
2   public class Main {
3       public static void main(String[] args) {
37                  int bid = Integer.parseInt(sc.nextLine());
38                  System.out.print(s: "Enter Member ID: ");
39                  int mid = Integer.parseInt(sc.nextLine());
40                  lm.issueBook(bid, mid);
41              } else if (c == 4) {
42                  System.out.print(s: "Enter Book ID: ");
43                  int bid = Integer.parseInt(sc.nextLine());
44                  System.out.print(s: "Enter Member ID: ");
45                  int mid = Integer.parseInt(sc.nextLine());
46                  lm.returnBook(bid, mid);
47              } else if (c == 5) {
48                  System.out.print(s: "Enter search keyword: ");
49                  String key = sc.nextLine();
50                  List<Book> r = lm.searchBooks(key);
51                  for (Book b : r) b.displayBookDetails();
52              } else if (c == 6) {
53                  List<Book> r = lm.sortBooksByTitle();
54                  for (Book b : r) b.displayBookDetails();
55              } else break;
56              System.out.print(s: "Do you want to continue? (y/n): ");
57              String again = sc.nextLine();
58              if (!again.equalsIgnoreCase(anotherString: "y")) break;
59          }
60      }
61  }
62
```

OUTPUT –

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS QUERY RESULTS

```
PS C:\Users\tyagi> cd "c:\Users\tyagi\OneDrive\Desktop\CityLibraryFixed\" ; if ($?) { javac Main.java } ; if ($?) { java Main }
1 Add Book
2 Add Member
3 Issue Book
4 Return Book
5 Search Books
6 Sort Books
7 Exit
Enter your choice: 1
Enter Book ID: 23
Enter Title: RAW
Enter Author: SHASHANK
Enter Category: FINE
Do you want to continue? (y/n): Y
1 Add Book
2 Add Member
3 Issue Book
4 Return Book
5 Search Books
6 Sort Books
7 Exit
Enter your choice: 5
Enter search keyword: 23
ID: 23
Title: RAW
Author: SHASHANK
Category: FINE
Issued: false
--------------------
Do you want to continue? (y/n):
```

EXPLANATION –

The program creates a Library Management System that works through a menu. It uses a LibraryManager object to handle all operations. A loop keeps showing the menu until the user chooses to exit.

How the program works (conceptually):

1. **Loads existing data**
   When the program starts, it loads all books and members stored in text files.
2. **Displays a menu**
   The user is shown options like adding books, adding members, issuing books, returning books, searching, and sorting.
3. **Takes user choice safely**
   The program asks the user for a choice and performs the selected operation.
4. **Add Book / Add Member**
   The user enters the required details, and the information is saved into the system and stored in files.
5. **Issue and Return Books**
   It updates both the book status and the member's issued book list.
6. **Search Books**
   The user enters a keyword, and the system finds matching books by ID, title, author, or category.
7. **Sort Books**
   Books are sorted by title and displayed.
8. **Continue or Exit**
   After every operation, the program asks if the user wants to continue or end the program.