JFS-3

1.)

```java
package oops2;

public class Books {  7 usages
    private long bookID;  4 usages
    private String title;  4 usages
    private  String author;  4 usages
    private boolean isAvailable;  4 usages

    public Books(long bookID,String title,String author,boolean isAvailable){  1 usage
        this.bookID = bookID;
        this.title = title;
        this.author = author;
        this.isAvailable = isAvailable;
    }

    public long getBookID() { return bookID; }
    public void setBookID(long bookID) { this.bookID =bookID; }
    public String getTitle() { return title; }
    public void setTitle(String title) { this.title = title; }
    public String getAuthor() { return author; }
    public void setAuthor(String author) { this.author = author; }
    public boolean isAvailable() { return isAvailable; }
    public void setBookAvailable(boolean bookAvailable) { this.isAvailable = bookAvailable; }

    public void displayBook(){  2 usages
        System.out.println("BookId: "+ bookID);
        System.out.println("Title: "+title);
        System.out.println("Author: "+ author);
        System.out.println("Available: "+(isAvailable ? "Yes" : "No"));
    }
```

src > oops2 > Books.java > Books

```java
50      class library{  2 usages
51
52          private Books[] books;  9 usages
53          private int bookcount;  7 usages
54              private int bookCount;  1 usage
55
56              public library() {  1 usage
57                  this.books = new Books[5];
58                  this.bookcount = 0;
59          }
60              public void addBook (Books book){  1 usage
61                  if (bookcount < books.length) {
62                      books[bookcount] = book;
63                      bookcount++;
64                      System.out.println("Book added  Successfully!");
65                  } else {
66                      System.out.println("Library is full! Cannot add more books.");
67                  }
68
69              }
70              public void replaceBook( long bookID,String newtitle,String newauthor){  1 usage
71                  for (int i = 0; i <bookcount; i++) {
72                      if (books[i].getBookID() == bookID) {
73                          books[i].setTitle(newtitle);
74                          books[i].setAuthor(newauthor);
75                          System.out.println("Book details updated successfully!");
76                          return;
77                      }
78                  }
79                  System.out.println("Book ID not found"+ bookID + "not found.");
80              }
81              public Books searchBook(int bookID) {  1 usage
```

```java
if (bookcount ==0){
    System.out.println("No books available in the library.");
} else {
    System.out.println(" Library Books:");
    for (int i = 0; i <bookcount ; i++) {
        books[i].displayBook();

    }
}
}
```

```java
package oops2;

import java.awt.print.Book;
import java.util.Scanner;
public class BookManagementSystem {
    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 a Book");
            System.out.println("2. Replace a Book");
            System.out.println("3. Search for a Book");
            System.out.println("4. Display All Books");
            System.out.println("5. Exit");
            System.out.println("Enter your choice: ");

            int choice = scanner.nextInt();
            scanner.nextLine();

            switch (choice) {
                case 1:
                    System.out.println("Enter Book ID: ");
                    long bookID = scanner.nextInt();
                    scanner.nextLine();
                    System.out.println("Enter Book Title: ");
                    String title = scanner.nextLine();
                    System.out.println("Enter Author Name: ");
                    String author = scanner.nextLine();
                    System.out.println("Is the book available (true/fales)? ");
                    boolean isAvailable = scanner.nextBoolean();
```

```
                Books newBook = new Books(bookID, title, author, isAvailable);
                library.addBook(newBook);
                break;

            case 2:
                // Replace a book
                System.out.print("Enter Book ID to replace: ");
                int replaceID = scanner.nextInt();
                scanner.nextLine(); // Consume newline
                System.out.print("Enter New Title: ");
                String newTitle = scanner.nextLine();
                System.out.print("Enter New Author: ");
                String newAuthor = scanner.nextLine();
                library.replaceBook(replaceID, newTitle, newAuthor);
                break;

            case 3:
                // Search for a book
                System.out.print("Enter Book ID to search: ");
                int searchID = scanner.nextInt();
                Books foundBook = library.searchBook(searchID);
                if (foundBook != null) {
                    System.out.println("Book found:");
                    foundBook.displayBook();
                } else {
                    System.out.println("Book not found.");
                }
                break;
```

```
            case 5:
                // Exit the program
                System.out.println("Exiting Library Management System.");
                scanner.close();
                return;

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

output

Library management system

1. Add a Book

2. Replace a Book

3. Search for a Book

4. Display All Books

5. Exit

Enter your choice:

1

Enter Book ID:

001

Enter Book Title:

late night dream

Enter Author Name:

thiruphysco qq

Is the book available (true/fales)?

true

Book added Successfully!

Library management system

1. Add a Book

2. Replace a Book

3. Search for a Book

4. Display All Books

5. Exit

Enter your choice:

1

Enter Book ID:

100

Enter Book Title:

urban postcomplexesoceity with

Enter Author Name:

Mr.Wise

Is the book available (true/fales)?

true

Book added Successfully!

Library management system

1. Add a Book

2. Replace a Book

3. Search for a Book

4. Display All Books

5. Exit

Enter your choice:

1

Enter Book ID:

1001

Enter Book Title:

present and upcoming postcomplexecity media drama and there life is drama (matrixxxx).

Enter Author Name:

Thiru Gnanam p

Is the book available (true/fales)?

Fales

Library management system

1. Add a Book

2. Replace a Book

3. Search for a Book

4. Display All Books

5. Exit

Enter your choice:

4

Library Books:

BookId: 799

Title: woem

Author: doem

Available: Yes

Library management system

1. Add a Book

2. Replace a Book

3. Search for a Book

4. Display All Books

5. Exit

Enter your choice:

5

Exiting Library Management System.

2)

```java
package tax;

import java.sql.Driver;

interface Taxable{ 2 usages 2 implementations
        double SALES_TAX = 7; 1 usage
        double INCOME_TAX = 10.5; 1 usage
        void calculateTax(); 2 usages 2 implementations
    }
     class Employee implements Taxable { 2 usages
        private int empId; 2 usages
        private String name; 2 usages
        private double salary; 2 usages


         public Employee(int empId,String name,double salary){ 1 usage
            this.empId =empId;
            this.name = name;
            this.salary = salary;
        }

        @Override 2 usages
         public void calculateTax(){
            double incomeTax = salary * 12 * INCOME_TAX;
            System.out.println(" Income Tax for "+name+" (ID: "+ empId + "): Rs. "+ incomeTax);
        }

    }
    class product implements Taxable{ 2 usages
        private int pid; 2 usages
        private double price; 2 usages
        private int quantity; 1 usage
```

```java
    public  product(int pid, double price, int quantity){ 1 usage
        this.pid = pid;
        this.price = price;
        this.quantity = quantity;
    }
    @Override 2 usages
    public void calculateTax(){
        double salesTax = price * SALES_TAX;
        System.out.println(" Sales Tax on product (ID: "+ pid + "): Rs. "+ salesTax);
    }

}
```

```java
package tax;

import java.util.Scanner;

public class DriverMain {

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

        System.out.println("Enter Employee ID: ");
        int empId =scanner.nextInt();
        scanner.nextLine();
        System.out.println("Enter Employee Name: ");
        String Name = scanner.nextLine();
        System.out.println("Enter Employee salary: ");
        double salary = scanner.nextDouble();
        Employee emp = new Employee(empId, Name, salary);

        System.out.println("Enter product ID: ");
        int pid =scanner.nextInt();
        System.out.println("Enter product price: ");
        double price = scanner.nextDouble();
        System.out.println("Enter product quantity: ");
        int quantity = scanner.nextInt();
        product product = new product(pid, price, quantity);

        emp.calculateTax();
        product.calculateTax();
        scanner.close();

    }
```

OUTPUT:

```
Enter Employee ID:
793093794
Enter Employee Name:
goman p
Enter Employee salary:
200000
Enter product ID:
70
Enter product price:
500
Enter product quantity:
2
 Income Tax for goman p (ID: 793093794): Rs. 2.52E7
 Sales Tax on product (ID: 70): Rs. 3500.0

Process finished with exit code 0
```