



Mo Tu We Th Fr Sa Su

ASSIGNMENT-4

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

```
class Book {
```

```
    int id;  
    String title, author;  
    boolean issued;
```

```
Book(int id, String t, String a, boolean issued) {
```

```
    this.id = id;
```

```
    this.title = t;
```

```
    this.author = a;
```

```
    this.issued = issued;
```

```
}
```

```
public String toString() {
```

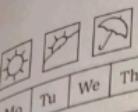
```
    return id + " " + title + ", " + author + ", " +
```

```
    issued;
```

```
}
```

```
}
```

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class member {

 int id;

 String name;

 List<Integer> issuedBooks = new ArrayList<>();

 member (int id, String name) {

 this.id = id;

 this.name = name;

}

 public String toString () {

 return id + "," + name + "," + issuedBooks.

 toString();

}

}

public class LibraryApp {

 Map<Integer, Book> books = new HashMap<>();

 Map<Integer, member> members = new

 HashMap<>();



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11 --- File Load ---

void load() {

try {

BufferedReader br = new BufferedReader(new
FileReader("books.txt"));

String s;

while ((s = br.readLine()) != null) {

String[] p = s.split(",");

books.put(Integer.parseInt(p[0]),

new Book(Integer.parseInt(p[1]), p[2],

Boolean.parseBoolean(p[3])));

}

br.close();

} catch (Exception e) {}

try {

BufferedReader br = new BufferedReader(new
FileReader("members.txt"));

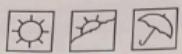
String s;

while ((s = br.readLine()) != null) {

String[] p = s.split(",");

members.put(Integer.parseInt(p[0]),

new Member(Integer.parseInt(p[1]), p[2]));



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}

br.close();
} catch (Exception e) { }

11---- File Save ---

void save () {

try {

BufferedWriter bw = new BufferedWriter (new
FileWriter ("books.txt"));

for (Book b : books.values ()) bw.write (b + "\n");
bw.close ();

bw = new BufferedWriter (new FileWriter ("members.
txt"));

for (Member m : members.values ()) bw.write (m + "\n");
bw.close ();

} catch (Exception e) {}

}



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11 - - - Basic Operations - - -

```
void addBook(Scanner sc) {
```

```
    System.out.print("Book ID: ");
```

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

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

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

```
    System.out.print("Author: ");
```

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

```
    books.put(id, new Book(id, t, a, false));
```

```
    save();
```

```
    System.out.println("Book added!");
```

```
}
```

```
void addMember(Scanner sc) {
```

```
    System.out.print("Member ID: ");
```

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

```
    System.out.print("Name: ");
```

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

```
members.put(id, new Member(id, n));
save();
System.out.println("Member added!");
}
```

```
void issueBook (Scanner sc) {
    System.out.print("Book ID: ");
    int b = sc.nextInt();
    System.out.print("Member ID: ");
    int m = sc.nextInt();
```

```
if (!books.containsKey(b) || !members.
    containsKey(m)) {
    System.out.println("Invalid ID!");
    return;
}
```

```
Book bk = books.get(b);
if (bk.issued)
    System.out.println("Already issued!");
return;
}
```



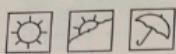
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```
bk.issued = true;  
members.get(m).issuedBooks.add(b);  
save();  
System.out.println("Already issued!");  
return;  
{
```

```
bk.issued = true;  
members.get(m).issuedBooks.add(b);  
save();  
System.out.println("Issued!");  
{
```

```
void returnBook(Scanner sc){  
    System.out.print("Book ID: ");  
    int b = sc.nextInt();  
    System.out.print("Member ID: ");  
    int m = sc.nextInt();
```

```
} if(!books.containsKey(b) || !members.containsKey(m))  
System.out.println("Invalid ID!");
```



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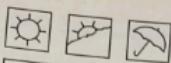
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 return ;
}

books.get(b).issued = false ;
members.get(m).issuedBooks.remove(Integer.
 valueOf(b));
save();
System.out.println("Returned!");
}

void search(Scanner sc) {
 System.out.print("Search title: ");
 sc.nextLine();
 String key = sc.nextLine().toLowerCase();

for (Book b : books.values()) {
 if (b.title.toLowerCase().contains(key))
 System.out.println(b.id + " " + b.title +
 " by " + b.author);
}



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11 - --- MAIN MENU - - -

```
public static void main (String [] args) {  
    LibraryApp app = new LibraryApp ();  
    app.load ();  
    Scanner sc = new Scanner (System.in);
```

```
while (true) {
```

```
    System.out.println ("1. add Book 2. Add  
    member 3. Issue 4. Return 5. Search  
    6. Exit ");
```

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

```
    switch (ch) {
```

```
        case 1: app.addBook (sc); break;  
        case 2: app.addMember (sc); break;  
        case 3: app.issueBook (sc); break;  
        case 4: app.returnBook (sc); break;  
        case 5: app.search (sc); break;  
        case 6: return;
```

}

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