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**LIBRARY MANAGEMENT**

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# Description of the Project

In this project we are going to see how an Library Management works. In this program we have a class name called Library in which we take the normal input from the user, display it and search the book according to the name. We have another class called Book which inherits the class Library in which there are the ways to update , buy , return book from the records of the books. We have the main class in which we call all the methods defined and the program is executed. This Mini Project will give the brief idea that how the library management works and what are the things that are necessary for library management system

## Features

### 1 Management

To manage a Library and maintain the records of books.

### 2 Update

To update in terms of price and quantity of a book.

### 3 BuyBook

To Buy the Book from the library

### 4 Search Book

To Search a Book from several entries of book.

### 5 Return Book

To return a Book which has been bought by the customer.

## Software Used:

- The JDK is a development environment for building applications using the Java programming language. The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.
- The Java Platform, Standard Edition (Java SE) APIs define the core Java platform for generalpurpose computing. These APIs are in modules whose names start with java.
- The Java Development Kit (JDK) APIs are specific to the JDK and will not necessarily be available in all implementations of the Java SE Platform. These APIs are in modules whose names start with JDK.

## Logo:



## Description of the Project

Methods		
Sr no	Method Name	Description
1	buyBook()	Takes basic information from the user about to which book he or she wants to buy and calculate the buying date itself from the system date.
2	getBook()	It displays the data of the books that an user has given as an input..
3	updateBook()	It updates the information about the book in terms of quantity and price. .
4	returnBook()	To return the book which user has purchased
5	addBook()	Takes normal input from the user to enter the record of the book

## 6 SOURCE CODE :

```
package MyPack; import
java.util.Scanner; import
java.util.Date; import
java.time.Instant; import
java.text.SimpleDateFormat;
```

```
class Library {
int code;
String name;
String bname;
double price;
int qty; Date
mfgdate;
```

```
void addBook()
{
Scanner sc = new Scanner(System.in);
```

```

System.out.println("Enter code, book name, author name, price and quantity"); code =
sc.nextInt();
bname = sc.next();
name = sc.next();
price = sc.nextDouble();
qty = sc.nextInt();
}
void getBook()
{
System.out.println(code + " " + bname + " " + name + " " + price + " " + qty);
}

Static int searchBook(Libraryl[], int lc, String type)
{
String search name;
System.out.println("Enter the name of the book to be" + type);
Scanner sc = new Scanner(System.in);
searchname = sc.next();
for(int i = 0; i < lc; i++)
{
if(searchname.equals(l[i].bname))
{
System.out.println("Book Searched in record");
System.out.println("");
break; }
else
{
System.out.println("Book not found");
System.out.println("");
} } return 0; } }
class Book extends Library
{
Static void updateBook(Libraryl[], int lc)
{
Int sid = searchBook(l, lc, "Updated");
if(sid < lc) {

System.out.println("Press 1 for price update");
System.out.println("Press 2 for quantity update");
Scanner sc = new Scanner(System.in);

Int choice = sc.nextInt();

switch(choice) {

case 1 :
System.out.println("Enter the new price");
double nprice = sc.nextDouble();
l[sid].price = nprice;
System.out.println("BOOK PRICE UPDATED SUCCESSFULLY"); break;
case 2 :
System.out.println("Enter the new quantity");
int nqty = sc.nextInt();

```

```

l[sid].qty = nqty;
System.out.println("BOOK QUANTITY UPDATED SUCCESSFULLY"); break; default
:
System.out.println("Invalid Option");
System.out.println("");
break;
}

} else
{
System.out.println("Product doesn't exist");

}

} static void buy_book(Libraryl[],intlc)
{
Scanner sc = newScanner(System.in);
String buyname;
Int a;
System.out.println("Enter the name of book you want to buy");
buyname = sc.next();
System.out.println("You can purchase 1 book at a time");
for(int i=0;i<lc;i++)
{
if(buyname.equals(l[i].bname))
{
System.out.println("BOOK FOUND");
System.out.println("1.PROCEED(AlreadyRegistered)");
System.out.println("2.Stop");
System.out.println("3.Register with us");
a = sc.nextInt(); System.out.println("");
switch(a) {
case1 :
System.out.println("Y ou will get the bill of book on the provided EMAIL");
System.out.println("You bought the book successfully");
Datedate = new Date();
Instant today Instant = date.toInstant();
System.out.println("Renting date = " + date);
System.out.println("");
System.out.println("Pay the book amount to Librarian when you come to return the book");
System.out.println("Return the book after 15 days");
System.out.println("");

break;

case2 : System.out.println("Process Stopped!!!!"); break;
case3 :
String email;
System.out.println("Enter your email to register with us");
email = sc.next();
System.out.println("");
System.out.println("THANKS FOR REGISTERING WITH US");

```

```

System.out.println("You registered with us successfully");
System.out.println("NOW AGAIN SELECT THE OPTION OF BUY BOOK");
break;

default :
System.out.println("Invalid choice");
break; }
break; }
else
{
System.out.println("Book not found");
}
}}

Static void return book()
{
Scannersc = new Scanner(System.in);
String rbook;
Int rdays,b,camt;
Date pdate;
System.out.println("Enter the name of the book to be returned");
rbook = sc.next();
sc.nextLine();
System.out.println("After how many days you are returning the book");
rdays = sc.nextInt();
if(rdays > 15)
{
System.out.println("You are returning the book late");
System.out.println("Pay the fine of RS.150");
System.out.println("RETURN THE BOOK IMMEDIATELY ");
System.out.println("1 - ONLINEMODE,2 - CASHMODE");
b = sc.nextInt();
switch(b) { case1
:
System.out.println("V ISIT OUR WEBSITE = www.onlinelibmanage.com");
System.out.println("After paying the money take screenshot of payment");
System.out.println("Show the screenshot to the librarian");
break;
case2 :
System.out.println("Pay the cash amount RS.150 to the Librarian");
System.out.println("The mail has been sent to the Librarian about you");
System.out.println("");
break; } }
else
{
System.out.println(""); System.out.println("Thanks for returning the book on time");
System.out.println("PAY THE BOOK AMOUNT TO THE LIBRARIAN");
System.out.println("The bill of your book is sent to your email id(Registered)");
System.out.println("-----DO VISIT AGAIN -----");
System.out.println("");
}
}

```

```
}}
```

```
Class LibraryManagement
```

```
{
    public static void main(String args[]) throws Exception {
        Book b[] = new Book[50];
        int lc = 0, id = 0, i;
        Scanner sc = new Scanner(System.in);

        while(true)
        {
            System.out.println("");
            System.out.println(" ***** WELCOME TO LIBRARY MANAGEMENT PROGRAM * *****");
            System.out.println("");
            System.out.println("1.Add Book");
            System.out.println("2.Display Books");
            System.out.println("3.Total Books");
            System.out.println("4.Search Book");
            System.out.println("5.Update Book");
            System.out.println("6.Return Book");
            System.out.println("7.Rent a Book");
            System.out.println("8.Exit");
            System.out.println("Enter the choice : ");

            int choice = sc.nextInt();

            switch(choice)
            { case 1
              :
                b[id] = new Book();
                b[id].addBook();
                id ++;
                lc ++;
                break;
              case 2 :
                if(lc == 0)
                {
                    System.out.println("There is no book in the database");
                } else
                {
                    System.out.println("Book Details are as follows");

                    System.out.println("*****");
                    System.out.println("Code Book Name AuthName Price Qty");
                    System.out.println("*****");
                    for(i = 0; i < id; i++)
                    {
                        b[i].getBook();
                    }
                    System.out.println("");
                }
            }
        }
    }
}
```

```

} break;
case3 :
System.out.println("Total Books = " + lc);
System.out.println("");

break;

case4 : intsid =
Book.search_book(b,lc,"Searched"); break;

case5 :
Book.update_book(b,lc); break;

case6 :
Book.return_book();
break;
case7 :
Book.buy_book(b,lc);
break; case8 :
System.out.println("End of Program");
System.exit(0);
break;
default :
System.out.println("Invalid input");
}
}
}
}
}

```

## 7 OUTPUT :-

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

- 1.Add Book
- 2.Display Books
- 3.Total Books
- 4.Search Book
- 5.Update Book
- 6.Return Book
- 7.Rent Book
- 8.Exit

Enter the choice:

1

Enter code,bookname,authorname, price and quantity

120 WSD RAJ 200 10

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

- 1.Add Book
- 2.Display Books



- 3.Total Books
- 4.Search Book
- 5.Update Book
- 6.Return Book
- 7.Rent Book
- 8.Exit

Enter the choice:

1

Enter code,bookname,authorname, price and quantity

121 CPP SWAYAM 300 12

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

- 1.Add Book
- 2.Display Books
- 3.Total Books
- 4.Search Book
- 5.Update Book
- 6.Return Book
- 7.Rent Book
- 8.Exit

Enter the choice:

1

Enter code,bookname,authorname, price and quantity 122

JAVA VEER 799 15

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

- 1.Add Book
- 2.Display Books
- 3.Total Books
- 4.Search Book
- 5.Update Book
- 6.Return Book
- 7.Rent Book
- 8.Exit

Enter the choice:

2

Book Details are as follows

\*\*\*\*\* Code

BookName AuthName Price Qty

\*\*\*\*\*

120 WSD RAJ 200.0 10

121 CPP SWAYAM 300.0 12

122 JAVA VEER 799.0 15

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

- 1.Add Book
- 2.Display Books
- 3.Total Books
- 4.Search Book

5.Update Book  
6.Return Book  
7.Rent Book  
8.Exit

Enter the choice:

3

Total Books=3

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

1.Add Book  
2.Display Books  
3.Total Books  
4.Search Book  
5.Update Book  
6.Return Book  
7.Rent Book  
8.Exit

Enter the choice:

4

Enter the name of the book to be Searched

JAVA

Book Searched in record

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

1.Add Book  
2.Display Books  
3.Total Books  
4.Search Book  
5.Update Book  
6.Return Book  
7.Rent Book  
8.Exit

Enter the choice:

5

Enter the name of the book to be Updated

WSD

Book Searched in record

Press 1 for price update

Press 2 for quantity update

1

Enter the new price

450

BOOK PRICE UPDATED SUCCESSFULLY

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

1.Add Book  
2.Display Books  
3.Total Books  
4.Search Book

5.Update Book

6.Return Book

7.Rent Book

8.Exit

Enter the choice:

2

Book Details are as follows

\*\*\*\*\* Code

BookName AuthName Price Qty

\*\*\*\*\*

120 WSD RAJ 450.0 10

121 CPP SWAYAM 300.0 12

122 JAVA VEER 799.0 15

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

1.Add Book

2.Display Books

3.Total Books

4.Search Book

5.Update Book

6.Return Book

7.Rent Book

8.Exit

Enter the choice:

7

Enter the name of book you want to buy

CPP

You can purchase 1 book at a time

BOOK FOUND

1.PROCEED(Already Registered)

2.Stop

3.Register with us

1

You will get the bill of book on the provided EMAIL

You bought the book successfully

Renting date=Sun Dec 18 11:40:26 IST 2022

Pay the book amount to Librarian when you come to return the book

Return the book after 15 days

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

1.Add Book

2.Display Books

3.Total Books

4.Search Book

5.Update Book

6.Return Book

7.Rent Book

8.Exit Enter the  
choice: 6  
Enter the name of the book to be returned  
JAVA  
After how many days you are returning the book  
12  
Thanks for returning the book on time  
PAY THE BOOK AMOUNT TO THE LIBRARIAN  
The bill of your book is sent to your email id(Registered)  
-----DO VISIT AGAIN-----

\*\*\*\*\*WELCOME TO LIBRARY MANAGEMENT PROGRAM\*\*\*\*\*

1.Add Book  
2.Display Books  
3.Total Books  
4.Search Book  
5.Update Book  
6.Return Book  
7.Rent Book  
8.Exit  
Enter the choice:  
8  
End of Program

## Future Scope:-

The extra features that was not been added were GUI , IO Handling , Multithreading. These features will be added soon to this program in near future.

Also Database connectivity was not a part of this program , will be added soon to it in future.

## Conclusion :-

From this Mini Project I got the knowledge and learnt about Inheritance , Packages , Array of objects , Class and Objects , basic Date Functions and basic Object Oriented Programming(OOP) Concepts. These all concepts helped me to strengthen the core Java concepts.

## References

[1] <https://www.geeksforgeeks.org/library-management-system-using-switch-statement-in-java/>

[2] *Java The Complete Reference Book.*