

Gebze Technical University
Department of Computer Engineering CSE
222/505 - Spring 2020
Homework 6 Report

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1 – Q3

1. SYSTEM REQUIREMENTS

Designed a library automation system. The system has two types of users: administrators who can update information and users who browse books. Book search is a public feature. To update the information, administrators have to enter the system with a password (a single general password is sufficient).

In the system, for each book, the name of the author, the title of the book, the location of the book should be stored.

The system should include at least the following functionality:

1. When searching by author name, all books of the author in the library will be listed on the screen. Then, whichever book the user chooses, the location(s) of that book will be displayed.
2. When searching by book title, author name, location and status will be shown.
3. When the administrator enters the system with a password, he will be able to add books, delete books, update information

1. **adminInterface()**

When the enter administrator firstly ask password. If it is true then continue to system. Listing the administrator what can do in this system and ask to choose one. Search book by name or author, delete book by location, change information, add new book.

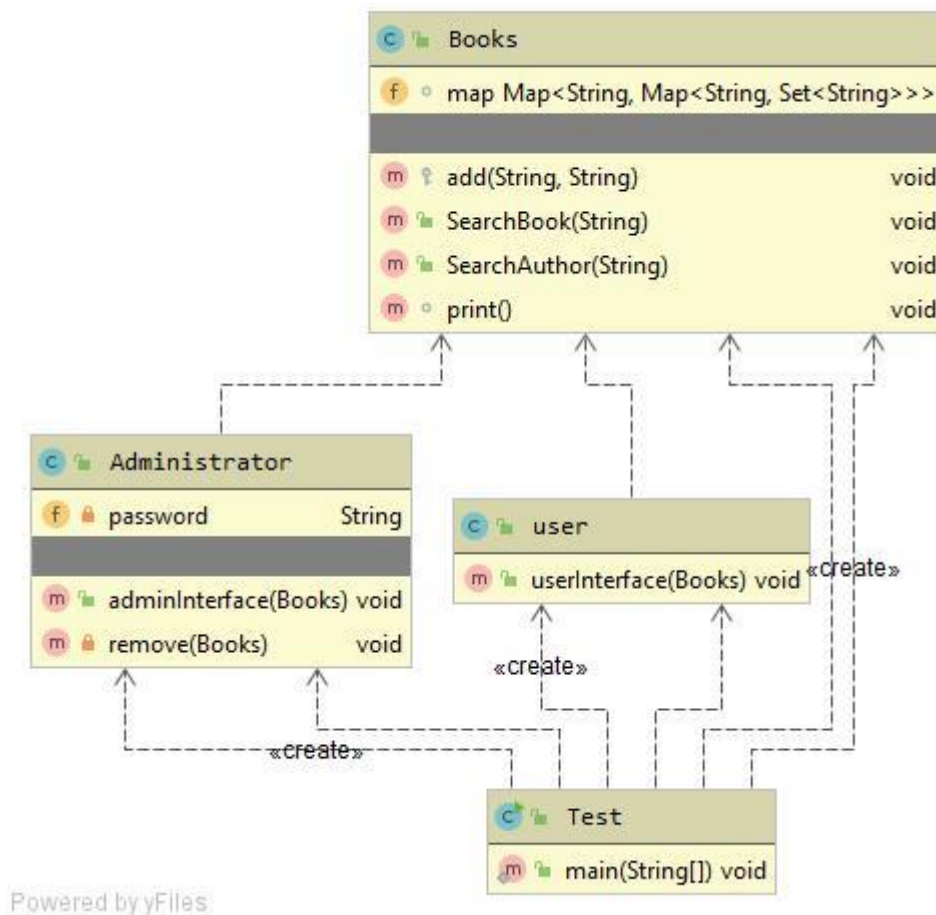
2. **userInterface()**

Just permission to search book by name or author in system.

3. **Book()**

Is just a hold information about books. When system opening crate automatically some books for test.

2. Class Diagram



3. PROBLEM SOLUTION APPROACH

Firstly created a choose menu. Checking who is enter the system.

Every user has menu like this and they can choose what they want do allowed by system. When they search book they specified how they will search? By name or author. When searching by author name, all books of the author in the library will be listed on the screen. Then, whichever book the user chooses, the location(s) of that book will be displayed.

When searching by book title, author name, location and status will be shown

Administrator wants to delete book from library, must be enter location and if matched correct delete book.

When add new book must be enter author and name of book. System automatically assign new location a book on the 5th shelf in the 3rd corridor, such as "c3s5.1534" can be used .1534 is random number for be unique.

4. TEST CASES

Test Case	Test Scenerio	Test Data	Expected Result
1. userInterface	When user choose “1” print user menu	1	User menu
2. adminInterface	When user choose “2” print admin menu	2	Administrator menu
3. searchbook	iterate in author and check books name.	Aylak Adam	Write all book include “Aylak Adam” in orderly : “author” “name of book” “location”
4. searchAuthor	When searching by author name, all books of the author in the library will be listed on the screen.	Franz Kafka	Print all books belongs to Franz Kafka in s the system
5. addBook	Add new book to the system. Write about its info: “Author” and “name of book” and system automatically assign new location.	Author : Alper Yasar Name : Keyfi	Create new book
6. remove	remove a book given location	c24s48.242	Check location is exist and if it is exist delete it.
7. remove		root/second_directory/ new_directory	Listing all files and directories in directory and ask the user for deleting.
8. update	Ask to admin what change want: status	In shelf	Change book status as “In shelf”

Tested with given examples in pdf.

5. RUNNING AND RESULTS

author : Grigory Petrov - name : Beyaz Zambaklar Ülkesinde Location : c19s8.43
author : Friedrich Nietzsche - name : Böyle Söyledi Zerdüşt Location : c21s2.147
author : Stefan Zweig - name : Olağanüstü Bir Gece Location : c18s2.153
author : Stefan Zweig - name : Olağanüstü Bir Gece Location : c22s6.242
author : Sabahattin Ali - name : İçimizdeki Seytan Location : c24s3.111
author : Franz Kafka - name : Aylak Adam Location : c5s7.96
author : Franz Kafka - name : Dönüşüm Location : c8s7.103
author : Franz Kafka - name : Dönüşüm Location : c21s2.184
author : Franz Kafka - name : Dönüşüm Location : c29s1.30
author : Lev N. Tolstoy - name : İnsan Neyle Yaşar Location : c6s1.59
author : Gabriel Garcia Marquez - name : Kırmızı Pazartesi Location : c18s7.255
author : Gabriel Garcia Marquez - name : Kırmızı Pazartesi Location : c11s4.35
author : Gabriel Garcia Marquez - name : Kırmızı Pazartesi Location : c20s5.69
author : Gabriel Garcia Marquez - name : Kırmızı Pazartesi Location : c12s6.47
author : Jack London - name : Beyaz Diş Location : c23s1.243
author : Sigmund Freud - name : Amator Psikanaliz Location : c8s7.249
author : Yusuf Atılgan - name : Aylak Adam Location : c12s3.36
author : Yusuf Atılgan - name : Aylak Adam Location : c17s3.172
author : Yusuf Atılgan - name : Anayurt Oteli Location : c26s1.136
author : Isidor Feinstein Stone - name : Sokrates'in Yargılanması
Location : c29s2.142
author : Jose Mauro De Vasconcelos - name : Seker Portakalı Location : c26s5.92
author : Jose Mauro De Vasconcelos - name : Seker Portakalı Location : c28s4.205
author : Oscar Wilde - name : Dorian Gray'in Portresi Location : c26s2.250
author : Aldous Huxley - name : Cesur Yeni Dünya Location : c0s4.179
author : Thomas More - name : Utopia Location : c29s1.15

Book of location in c11s4 will be deleted in this system

```
1 - User
2 - Admin
0 - Exit
Choose : 1
1 - Book Name
2 - Author Name
0 - Exit
Choose :
1
Book name : Aylak Adam
author : Franz Kafka - name : Aylak Adam Location : c5s7.96
author : Yusuf Atilgan - name : Aylak Adam Location : c12s3.36
author : Yusuf Atilgan - name : Aylak Adam Location : c17s3.172
1 - Book Name
2 - Author Name
0 - Exit
Choose : 22
1 - Book Name
2 - Author Name
0 - Exit
Choose : 2
Author name : Oscar Wilde
author : Oscar Wilde - name : Dorian Gray'in Portresi
Book name : Dorian Gray'in Portresi
author : Oscar Wilde - name : Dorian Gray'in Portresi Location : c26s2.250
1 - Book Name
2 - Author Name
0 - Exit
Choose : 2
Author name : Yusuf Atilgan
author : Yusuf Atilgan - name : Aylak Adam
author : Yusuf Atilgan - name : Aylak Adam
author : Yusuf Atilgan - name : Anayurt Oteli
Book name : Anayurt Oteli
author : Yusuf Atilgan - name : Anayurt Oteli Location : c26s1.136
1 - Book Name
2 - Author Name
0 - Exit
Choose : 0
1 - User
2 - Admin
0 - Exit
Choose : 2
password : admin
1 - Search Book Name
2 - Search Author Name
3 - Add New Book
4 - Remove Book
5 - Update information
0 - Exit
```


Choose : 3

Book name : *keyfi*

Author name : *alper yaşar*

- 1 - Search Book Name
- 2 - Search Author Name
- 3 - Add New Book
- 4 - Remove Book
- 5 - Update information
- 0 - Exit

Choose : 4

Book Location : *c11s4.35*

- 1 - Search Book Name
- 2 - Search Author Name
- 3 - Add New Book
- 4 - Remove Book
- 5 - Update information
- 0 - Exit

Choose : 0

- 1 - User
- 2 - Admin
- 0 - Exit

Choose : 0

author : Grigory Petrov - name : Beyaz Zambaklar Ülkesinde Location : c19s8.43
author : Friedrich Nietzsche - name : Böyle Söyledi Zerdüşt Location : c21s2.147
author : Stefan Zweig - name : Olağanüstü Bir Gece Location : c18s2.153
author : Stefan Zweig - name : Olağanüstü Bir Gece Location : c22s6.242
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author : Jose Mauro De Vasconcelos - name : Seker Portakalı Location : c28s4.205
author : alper yaşar - name : keyfi Location : c19s7.42
author : Oscar Wilde - name : Dorian Gray'in Portresi Location : c26s2.250
author : Aldous Huxley - name : Cesur Yeni Dünya Location : c0s4.179
author : Thomas More - name : Utopia Location : c29s1.15

Added book is "keyfi"

3 – Q4

1. SYSTEM REQUIREMENTS

Implemented KWHashMap interface in the book using the following hashing methods to organize hash tables:

a) In chaining is a technique, each table element references a linked list that contains all the items that hash to the same table index. Used chaining with binary tree instead of linked list.

b) In open addressing, if the table entry is full, subsequent probe locations are calculated using linear probing ($\text{hash}(x) + i$) or quadratic probing ($\text{hash}(x) + i^2$) methods. Used an alternative probing method called double hashing where a second hash function is used to calculate subsequent probe locations ($\text{hash}(x) +$

2. Class Diagram

