

GTU Department of Computer Engineering

CSE 222/505 - Spring 2020

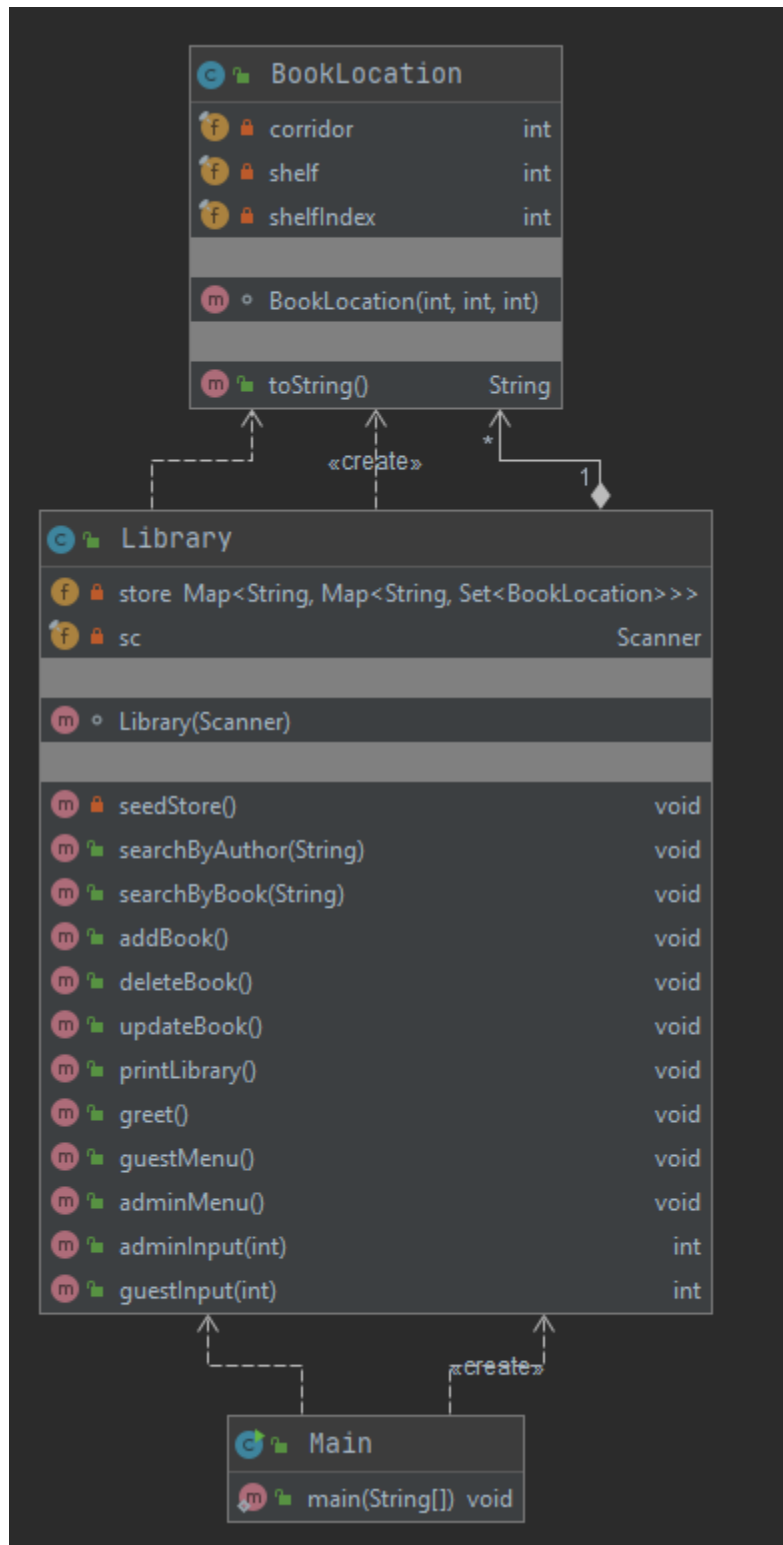
Homework 6 Report

Q3

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1. Class Diagrams



2. Problem solution approach

I started the solution by abstracting the BookLocation class. It holds the corridor number, shelf number and a index in shelf.

Then I created this Library class which holds the library inventory in a Map with key of Author names and value of another Map which also has a key of Book titles and a value of Set that holds the locations of that book.

For testing purposes I created a seed function inside the library class, which seeds this library store structure with various authors and books and locations.

The library class was responsible for user interactions and input handling. For that I created procedures of various scenarios. For adding a book, I first check if the book is already exists or not, if it exists I add a new location for that book, if not I create it. If the entered book author already exists, I add that book under that author.

For deletion, I first check if the book exists, if it exists I delete the given location of book. After this operation if there are no more locations left, I remove the book from library.

For updating a book, I re-ask adding book procedure to user. Then update the found book with given new values. It can update name of the book and locations of the book.

3. Results

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Library System

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=Guest Menu=

1- Print Library

2- Search by author name

3- Search by book name

4- Login as Admin

0- Exit

> 1

Author Inalcik

Book The_Classical_Age

Locations [c1s9.121]

Book The_Ottoman_Empire

Locations [c4s3.12, c6s3.11, c6s2.10]

Author Aytmatov

Book The_White_Ship

Locations [c1s2.2, c1s1.1]

Book Plakha

Locations [c1s1.1]

=Guest Menu=

1- Print Library

2- Search by author name

3- Search by book name

4- Login as Admin

0- Exit

> 2

Enter author:

Aytmatov

Searching author: Aytmatov

Listing books of Author Aytmatov

1- The_White_Ship

2- Plakha

Select book: 2

Locations found for book Plakha

[c1s1.1]

=Guest Menu=

1- Print Library

2- Search by author name

3- Search by book name

4- Login as Admin

0- Exit

> 3

Enter book:

Plakha

Searching book: Plakha

Found book: Plakha

Author of book: Aytmatov

Locations of book: [c1s1.1]

=Guest Menu=

1- Print Library

2- Search by author name

3- Search by book name

4- Login as Admin

0- Exit

> 4

Enter admin password (ps. 1234): 1234

Logged in as admin

=Admin Menu=

1- Print Library

2- Add book

3- Remove book

4- Update book

0- Log out

> 2

Enter name of book: Denemelerim

Enter corridor of book: 3

Enter shelf of book: 2

Enter id of book: 12

Enter author of book: Bugra

Author does not exist!

Created author with given book.

=Admin Menu=

1- Print Library

2- Add book

3- Remove book

4- Update book

0- Log out

> 1

Author Inalcik

Book The_Classical_Age

Locations [c1s9.121]

Book The_Ottoman_Empire

Locations [c4s3.12, c6s3.11, c6s2.10]

Author Aytmatov

Book The_White_Ship

Locations [c1s2.2, c1s1.1]

Book Plakha

Locations [c1s1.1]

Author Bugra

Book Denemelerim

Locations [c3s2.12]

=Admin Menu=

1- Print Library

2- Add book

3- Remove book

4- Update book

0- Log out

> 3

Enter name of book: The_Classical_Age

Enter author of book: Inalcik

Removed book The_Classical_Age from author Inalcik

=Admin Menu=

1- Print Library

2- Add book

3- Remove book

4- Update book

0- Log out

> 1

Author Inalcik

Book The_Ottoman_Empire

Locations [c4s3.12, c6s3.11, c6s2.10]

Author Aytmatov

Book The_White_Ship

Locations [c1s2.2, c1s1.1]

Book Plakha

Locations [c1s1.1]

Author Bugra

Book Denemelerim

Locations [c3s2.12]

=Admin Menu=

1- Print Library

2- Add book

3- Remove book

4- Update book

0- Log out

> 4

Enter name of book: Denemelerim

Enter author of book: Bugra

Enter new name of book: DenemeEdit

Enter new corridor of book: 3

Enter new shelf of book: 2

Enter new id of book: 14

=Admin Menu=

1- Print Library

2- Add book

3- Remove book

4- Update book

0- Log out

> 1

Author Inalcik

Book The_Ottoman_Empire

Locations [c4s3.12, c6s3.11, c6s2.10]

Author Aytmatov

Book The_White_Ship

Locations [c1s2.2, c1s1.1]

Book Plakha

Locations [c1s1.1]

Author Bugra

Book DenemeEdit

Locations [c3s2.14]

=Admin Menu=

1- Print Library

2- Add book

3- Remove book

4- Update book

0- Log out

> 0

Logged out

=Guest Menu=

1- Print Library

2- Search by author name

3- Search by book name

4- Login as Admin

0- Exit

> 0