

Gebze Technical University
Computer Engineering

CSE 222
2017 Spring

HOMEWORK 1 REPORT

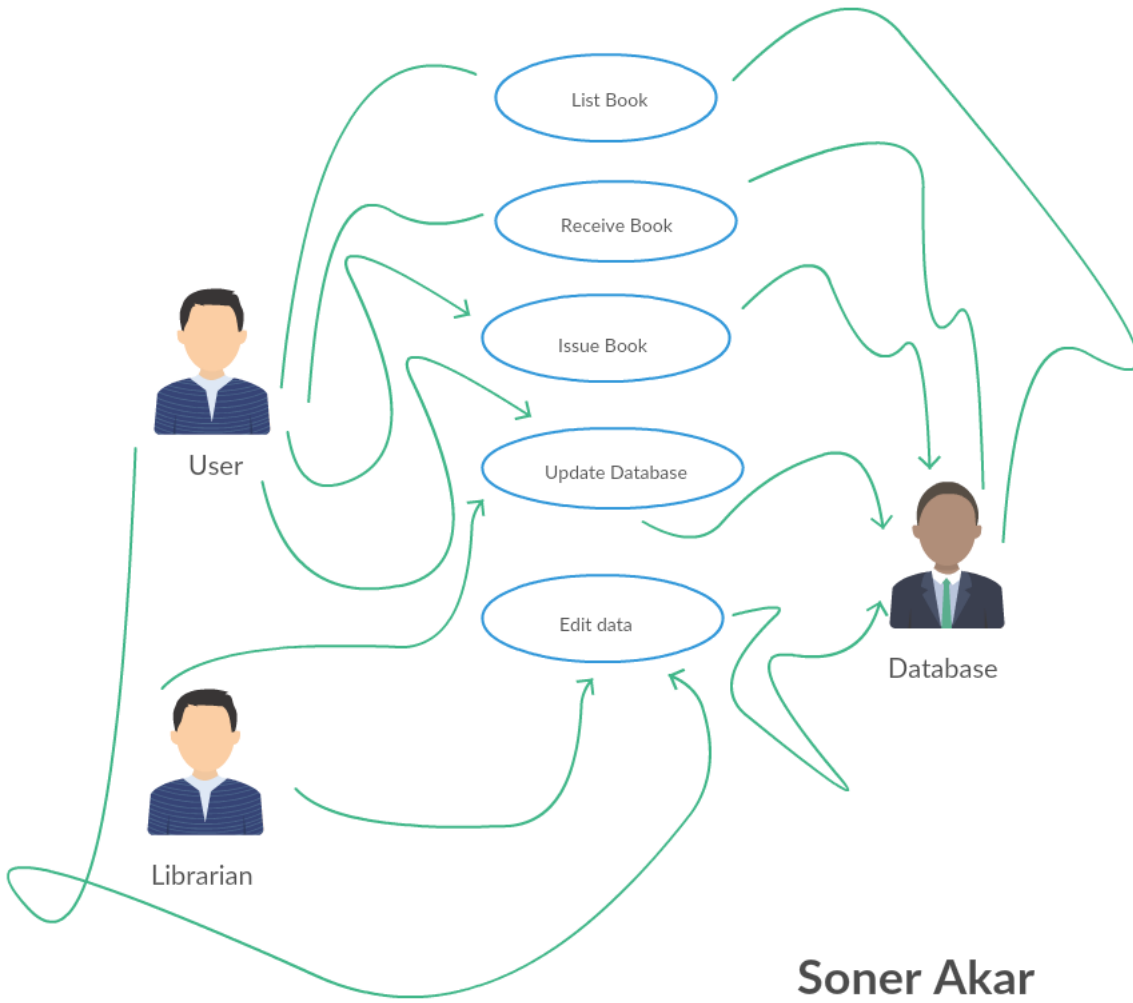
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SONER AKAR
<http://github.com/snrkr/hws>

1. System Requirements and Additional Information

Java JRE 1.8.0, IntelliJ IDE.

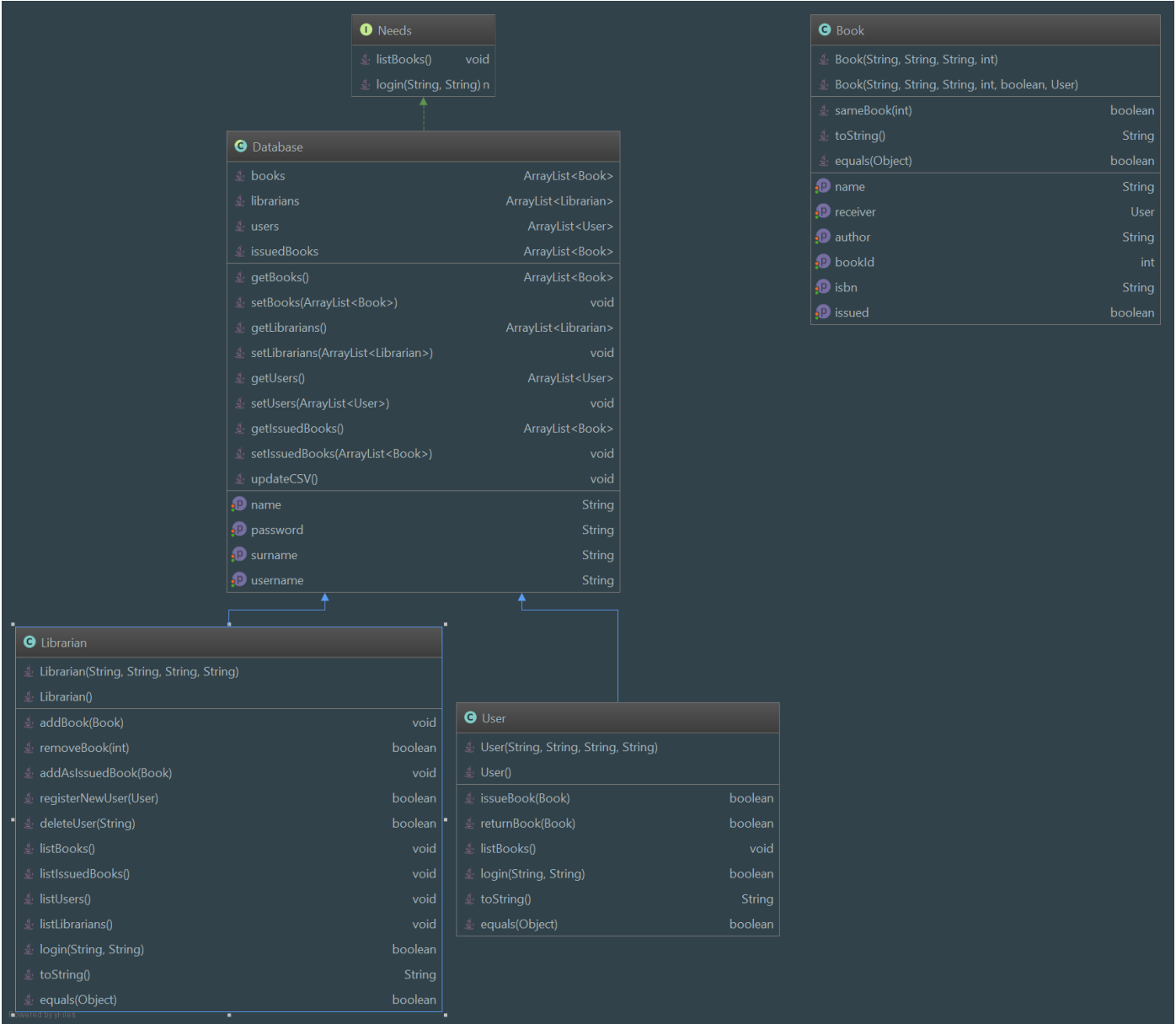
- CSV dosyasına yazma işlemi yapmadım.
- Input ile işlem yapmadan geç haberim olduğu için çok basit bir username password kontrolü yaptım polymorphism kullanarak.

2. Use Case Diagrams

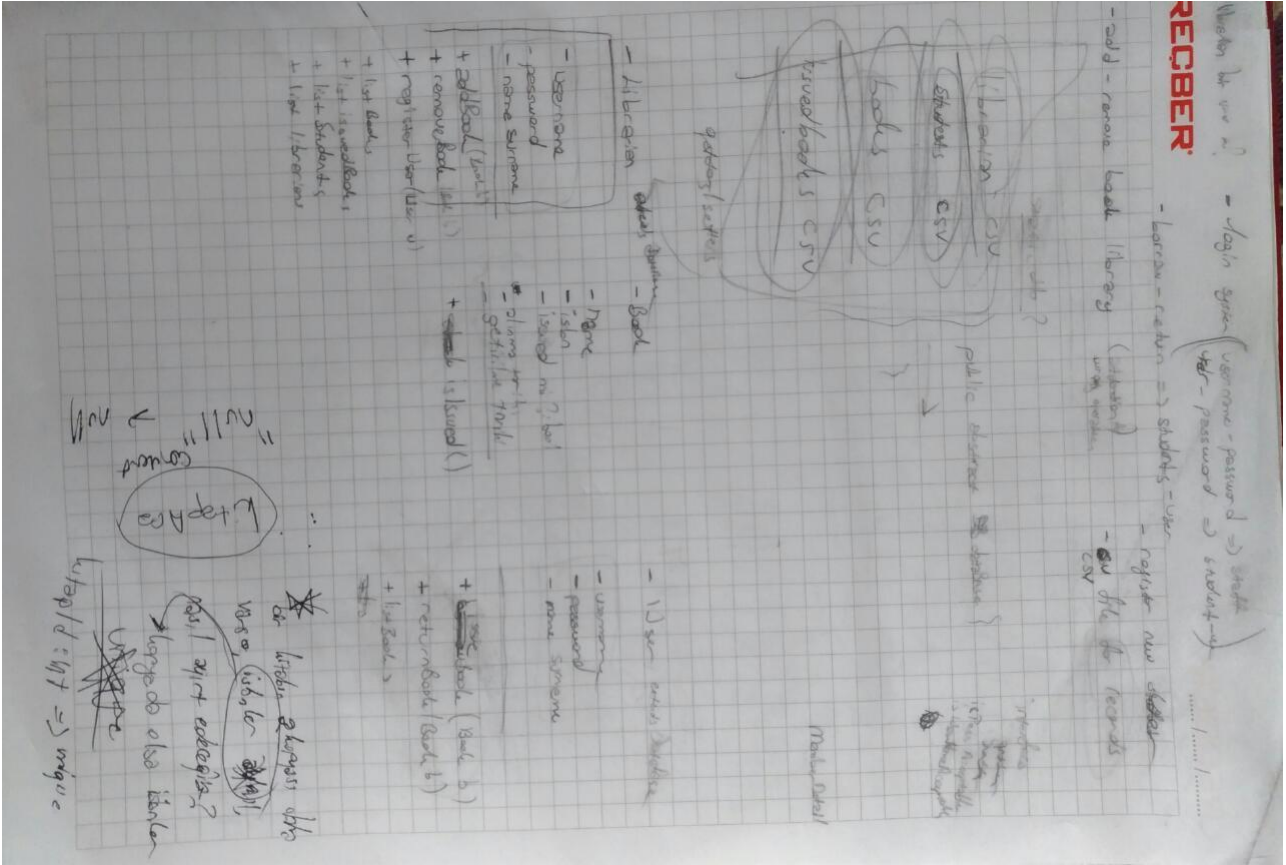


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3. Class Diagrams



4. Other Diagrams



5. Problem Solutions Approach

Bütün bilgileri ayrı ayrı tutan 4 adet arrayimiz var. Bunlar kullanıcılar, personeller, ödünç alınan kitaplar ve bütün alınan kitaplar için olmak üzere static blok içinde Database abstract classında tanımlanmıştır. Test Caselerde de görüldüğü gibi kitap alma verme, kullanıcı ekleme çıkarma gibi istenilen işlemler yapılıyor. Kullanıcı(User) ve Personel(Librarian) classları Database abstract classını miras alarak işlemleri yapıyor. Interface kullanım zorunluluğundan dolayıda sisteme giriş ve kitap listeleme fonksiyonlarını bu iki tür arasında override yaptım. Mainde de dikkat edileceği gibi kullanıcı ihtiyacı duymaması gereken fonksiyonlara erişemiyor. (C++'da olan protected yapısını taklit ettim.)

6. Test Cases

- Kitap ekleme çıkarma
- Kullanıcı ekleme çıkarma
- Kitabı alan kim
- Kitabı alma teslim etme

7. Running and Results

```
"C:\Program Files\Java\jdk1.8.0_121\bin\java" ...
Name: Rebecca Author: Daphne Du Maurier ISBN: 1101907878 Book Id: 34324 Issued: false Receiver: null
Name: Jane Eyre Author: Charlotte Bronte ISBN: 0141040386 Book Id: 1 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 890 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 891 Issued: false Receiver: null

For user ->

Name: Rebecca Author: Daphne Du Maurier ISBN: 1101907878 Book Id: 34324 Issued: false
Name: Jane Eyre Author: Charlotte Bronte ISBN: 0141040386 Book Id: 1 Issued: false
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 890 Issued: false
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 891 Issued: false

Librarians ->

Name: john Surname: McCay Username: cikicuk Password: passboypassgirl
Name: adminname Surname: adminsurname Username: admin Password: admin
Name: 7 Surname: Pro Username: windows Password: 123

Users ->

Name: sinan Surname: elveren Username: arora Password: 12345678
Name: soner Surname: akar Username: supersonic Password: sifre****
Name: user Surname: pass Username: user Password: pass

Books ->

Name: Rebecca Author: Daphne Du Maurier ISBN: 1101907878 Book Id: 34324 Issued: false Receiver: null
Name: Jane Eyre Author: Charlotte Bronte ISBN: 0141040386 Book Id: 1 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 890 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 891 Issued: false Receiver: null

Book list after added a new book ->

Name: Rebecca Author: Daphne Du Maurier ISBN: 1101907878 Book Id: 34324 Issued: false Receiver: null
Name: Jane Eyre Author: Charlotte Bronte ISBN: 0141040386 Book Id: 1 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 890 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 891 Issued: false Receiver: null
Name: Big Little Lies Author: Liane Moriarty ISBN: 0425274861 Book Id: 435 Issued: false Receiver: null

Book list after delete a book ->

Name: Rebecca Author: Daphne Du Maurier ISBN: 1101907878 Book Id: 34324 Issued: false Receiver: null
Name: Jane Eyre Author: Charlotte Bronte ISBN: 0141040386 Book Id: 1 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 891 Issued: false Receiver: null
Name: Big Little Lies Author: Liane Moriarty ISBN: 0425274861 Book Id: 435 Issued: false Receiver: null

User list after added a user ->

Name: sinan Surname: elveren Username: arora Password: 12345678
Name: soner Surname: akar Username: supersonic Password: sifre****
Name: user Surname: pass Username: user Password: pass
Name: ali Surname: veli Username: hap Password: hup

User list after delete a user ->

Name: soner Surname: akar Username: supersonic Password: sifre****
Name: user Surname: pass Username: user Password: pass
Name: ali Surname: veli Username: hap Password: hup

Book list after add a user ->

Name: Rebecca Author: Daphne Du Maurier ISBN: 1101907878 Book Id: 34324 Issued: false Receiver: null
Name: Jane Eyre Author: Charlotte Bronte ISBN: 0141040386 Book Id: 1 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 891 Issued: false Receiver: null
Name: Big Little Lies Author: Liane Moriarty ISBN: 0425274861 Book Id: 435 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 893 Issued: false Receiver: null

User issued a book ->

Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 891

Is the book issued ->

true

Book List with issue knowledge ->

Name: Rebecca Author: Daphne Du Maurier ISBN: 1101907878 Book Id: 34324 Issued: false Receiver: null
Name: Jane Eyre Author: Charlotte Bronte ISBN: 0141040386 Book Id: 1 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 891 Issued: true Receiver: Name: user Surname: pass Username: user Password: pass
Name: Big Little Lies Author: Liane Moriarty ISBN: 0425274861 Book Id: 435 Issued: false Receiver: null
Name: The Shack: Where Tragedy Confronts Eternity Author: William P. Young ISBN: 0964729237 Book Id: 893 Issued: false Receiver: null

Who is issuer? ->

Name: user Surname: pass Username: user Password: pass

Return a book ->

DONE..

Process finished with exit code 0
```

Q2) C Encapsulation and Polymorphism

C’de bir değişkeni private benzeri bir access modifier yapmak için static olarak tanımlarız. Global variable’i veya fonksiyonu static yaptığımızda, bunların scope aralığı sadece tanımlı oldukları dosyalar için kısıtlanır. (1)(2)(3)

Polymorphismi C dilinde yapmaya çalışırken kullanılan yaygın yöntem function pointer tanımlamaları yapılmış bir struct yapısı oluşturmaktır. Bu yöntem her hangi bir tip tarafından çağırılan methodların barındırılmasını sağlar. Daha sonra alt tipler(subtypes) bu structureda bulunan kendilerine ait fonksiyonları yerleştirerek(gösterterek) return ederler.

(1) main.c

```
#include <stdio.h>
#include "hide.h"

extern int getter();
extern void setter(int x);

int main() {
    set(90);
    printf("value = %d \n", get());
    set(70);
    printf("value = %d \n", get());
    return 0;
}
```

(2) hide.h

```
int get();
void setter(int x);
```

(3) hide.c

```
#include "hide.h"

static int value = 0;
static int get(void) {
    return value;
}

static void set(int new_value) {
    value = new_value;
}
```