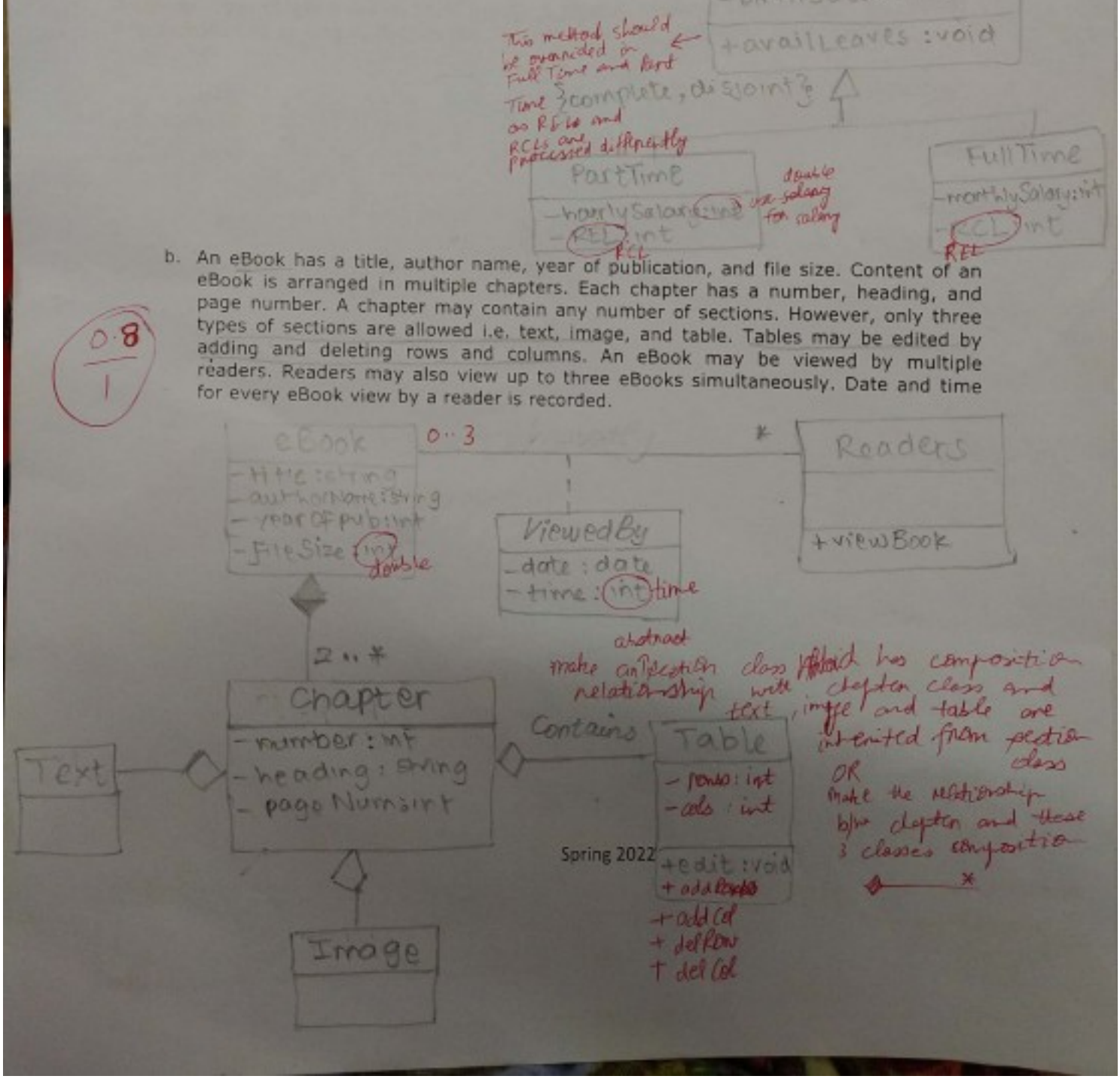

b. An eBook has a title, author name, year of publication, and file size. Content of an eBook is arranged in multiple chapters. Each chapter has a number, heading, and page number. A chapter may contain any number of sections. However, only three types of sections are allowed i.e. text, image, and table. Tables may be edited by adding and deleting rows and columns. An eBook may be viewed by multiple readers. Readers may also view up to three eBooks simultaneously. Date and time for every eBook view by a reader is recorded.

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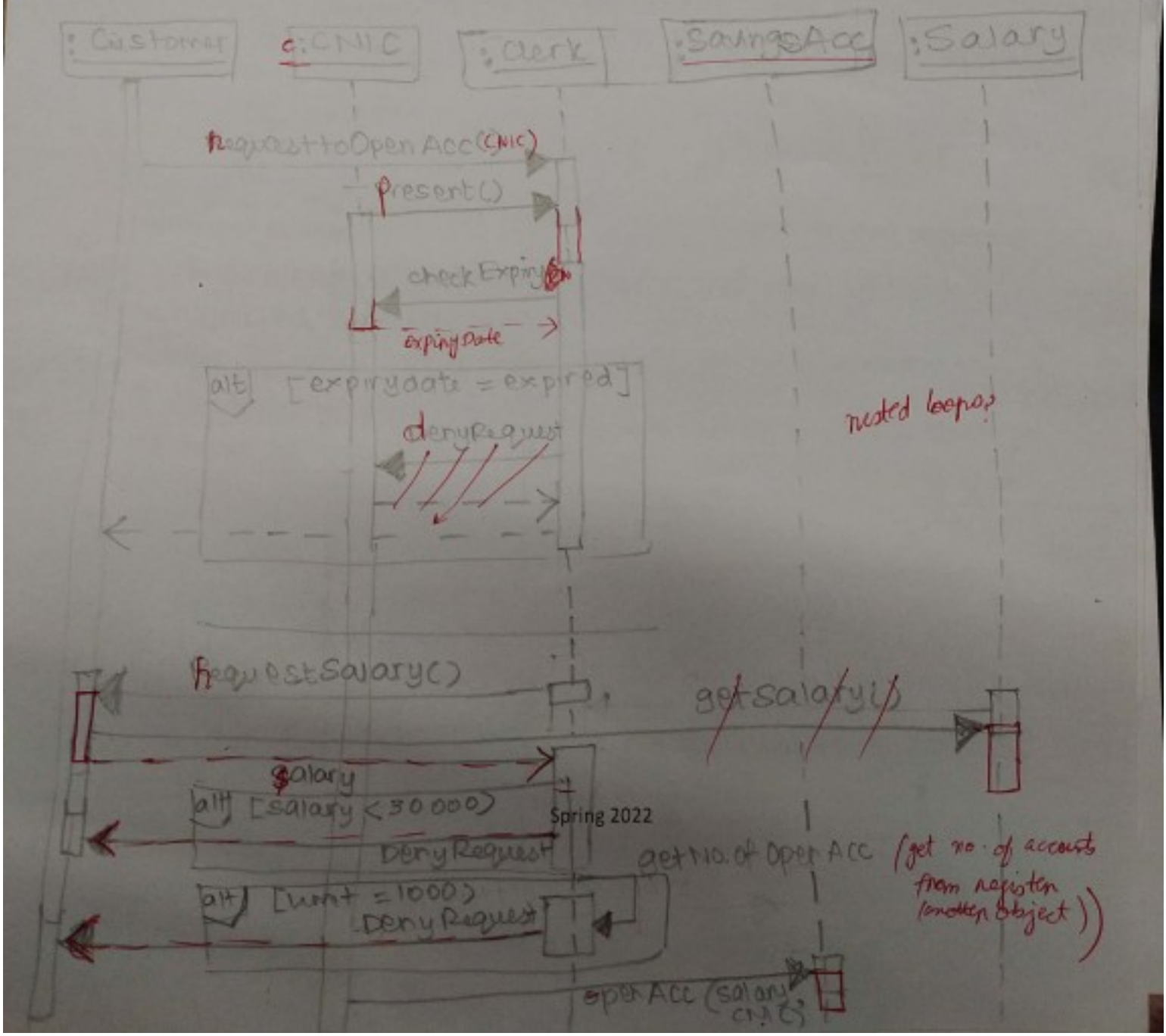
. /.Scanned with CamScanner

may be assumed as long as they do not contradict with the information given above.



Layer B (middle), and Layer C (bottom). Layer B uses the services provided by both Layer A and Layer C. Does this system exhibit layered cohesion? Why?

0.5 No.

In layered cohesion, only top layers can access the bottom layers not vice versa.
B should only be able to access C not A.

Q3. What is the relationship between procedural cohesion and sequential cohesion? Explain.

0.5 Procedural cohesion has a special case called sequential cohesion.

Data is passed from function to function in sequential cohesion in an order, but in procedural cohesion, data is not passed.

Q4. Name the lowest type of cohesion and explain it with the help of an example.

0.5 utility cohesion

All (helper) Functions that are broadly associated with each other are grouped together in a class.

e.g string concatenation, substring, string length functions may be bunched together in string class.

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- To differentiate from
- To give a brief overview of what the design is about

Q3. What is the benefit of describing different design patterns using a common template?

0.2 Helps to organise information.
Helps to distinguish what time to use which one.

0.5 Q4. Identify and differentiate between the 3 purposes of design patterns.

1 creational — For different entities, objects etc
creation

2 structural — For different data structures

3 behavioral — For interaction between different entities.

```
    gets(aname);
    cout<<"\n\n\nBook Created..";
}

void show_book()
{
    cout<<"\nBook no. : "<<bno;
    cout<<"\nBook Name : ";
    puts(bname);
    cout<<"Author Name : ";
    puts(aname);
}

void report()
{
    cout<<bno<<setw(30)<<bname<<setw(30)<<
    aname<<endl;
}

};          //class ends here
```

Q. Determine the value of CK metric LCOM for the book class* given above. Complete working (i.e. all steps) must be shown to get credit.

*(code taken from http://www.cppforschool.com/project/library-management-system.html)

$I = \{ bno, bname, aname \}$

$M = \{ createbook\ (M_1), showbook\ (M_2), modifybook\ (M_3), retbno\ (M_4), report\ (M_5) \}$

$I_1 \rightarrow I_1 = \{ bno, bname, aname \}$

$I_2 \rightarrow I_2 = \{ bno, bname, aname \}$

$I_3 \rightarrow I_3 = \{ bno, bname, aname \}$

$I_4 \rightarrow I_4 = \{ bno \}$

$I_5 \rightarrow I_5 = \{ bno, bname, aname \}$

$P = \{ \phi \}$

$Q = \{ (I_1, I_2), (I_1, I_3), (I_1, I_4), (I_1, I_5), (I_2, I_3), (I_2, I_4), (I_2, I_5), (I_3, I_4), (I_3, I_5), (I_4, I_5) \}$

$|P| = 0$

$|Q| = 10$

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$|P| \not> |Q|$

So $LCOM = 0$