CS 780 - Advanced Software Engineering

Final Exam

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1)

a) Logical Artifact

- These include the decision-making flow of control.
- These are developed before operational artifacts

b) Operational Artifacts:-

- These perform actual operations of the product.

c) Post delivery Maintenance:-

- Any change to any component of the product (including documentation) after it has passed the acceptance testing.
- It is needed to correct residual faults.
  - ↳ Analysis, design, implementation etc.
- Clients request to improve product effectiveness.

d) Art of Testing:

- Select a small, manageable set of testcases to maximize the chance of detecting a fault while minimizing the chances of wasting a test case

e) Equivalence class:

- It is a black-box testing technique used in software testing. It is better than many of software techniques like boundary value analysis, worst case testing, robust case testing and more in terms of time consumption.

f) Fault Isolation:

- A previously successful test case fails when a interface is added to what has been tested so far.

Therefore, the fault lies in interface between and the rest of product.

2)

a) True

b) True

c) True

d) True

e) False

f) True

3) If system works for any one test case in the range (100, 1000), then it will probably work for any other test case in the range

- Range (100, 1000) constitutes an equivalence class.

→ Range (100, 1000) has defined three different equivalence classes:-

Equivalence class 1:- Fewer than 100 records

Equivalence class 2:- Between 100 and 1000 records

Equivalnce class 3:- More than 1000 records.

2)

a) True

b) True

c) True

d) True

e) False

f)

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Equivalnce class 3:- More than 1000 records.

Test cases are:-

1) Testcase 1: 5 records

Member Equivalence class 1 ~~and adjacent to~~

2) Test case 2: 9 records.

Member Equivalence class 1 and adjacent to boundary class

3) Test case 3:- 10 records

Boundary value

4) Test case 4:- 11 records

Adjacent to boundary class

5) Testcase 5:- 998 records

Member Equivalence class 2

6) Testcase 6:- 999 records

Adjacent to boundary class

7) Test case 7:- 1000 records

Boundary class

8) Testcase 8:- 1001 records

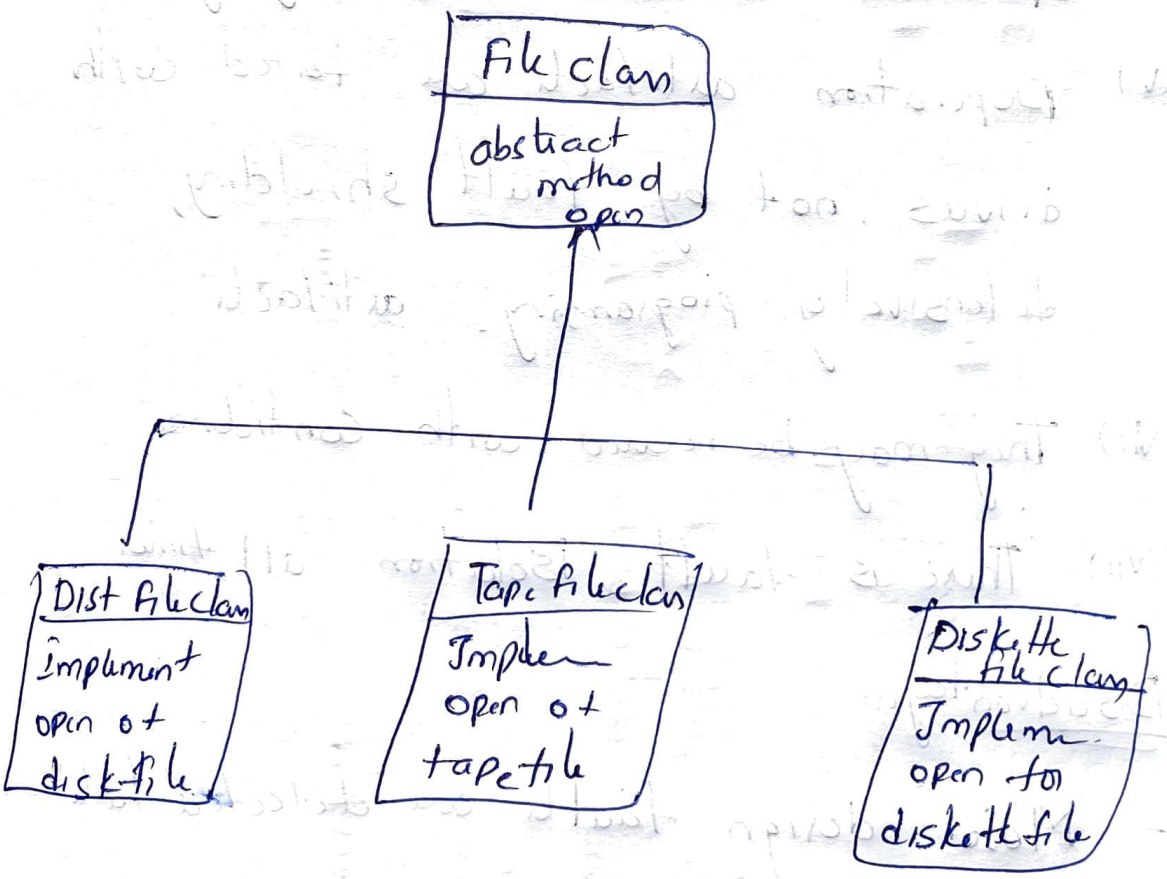
Member Equivalence class 3, adjacent to boundary class

4) Polymorphism and dynamic binding have negative effect on maintenance because

(i) The product fault on innovation myfile.open()

(ii) Which version of Open contains the fault.

- A static tool can't help
- We must trace.



5) Advantages of these Integration methods are

(I) Fault Isolation

(II) Stubs are not wasted

(III) Major design flaws show up early

(i) logic artifacts

(ii) Operational artifacts

(IV) Operational artifact are throughly tested

(V) Operation artifacts are tested with drivers, not by fault shielding, defensively programming artifacts

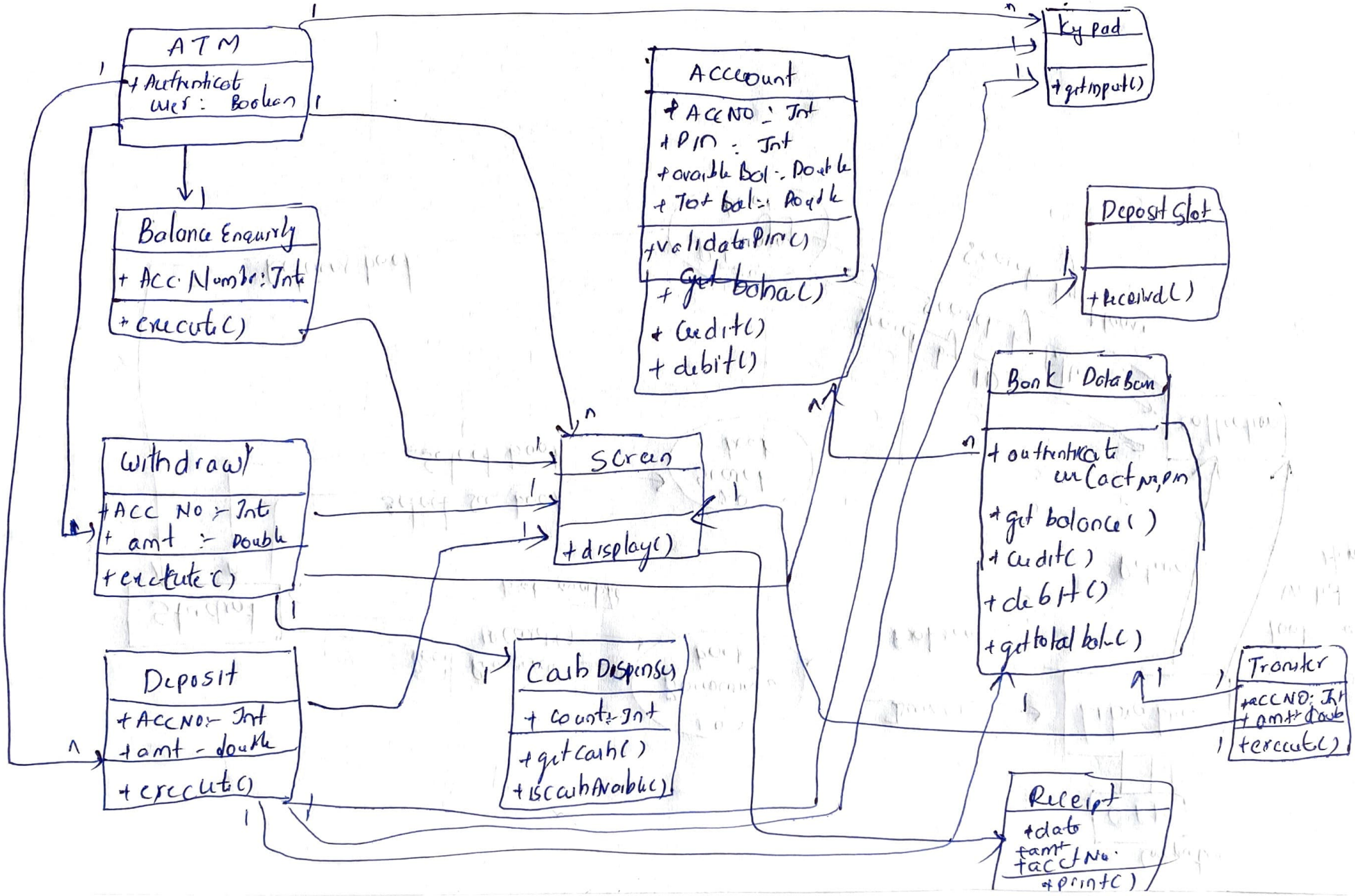
(VI) They may be reused with confidence

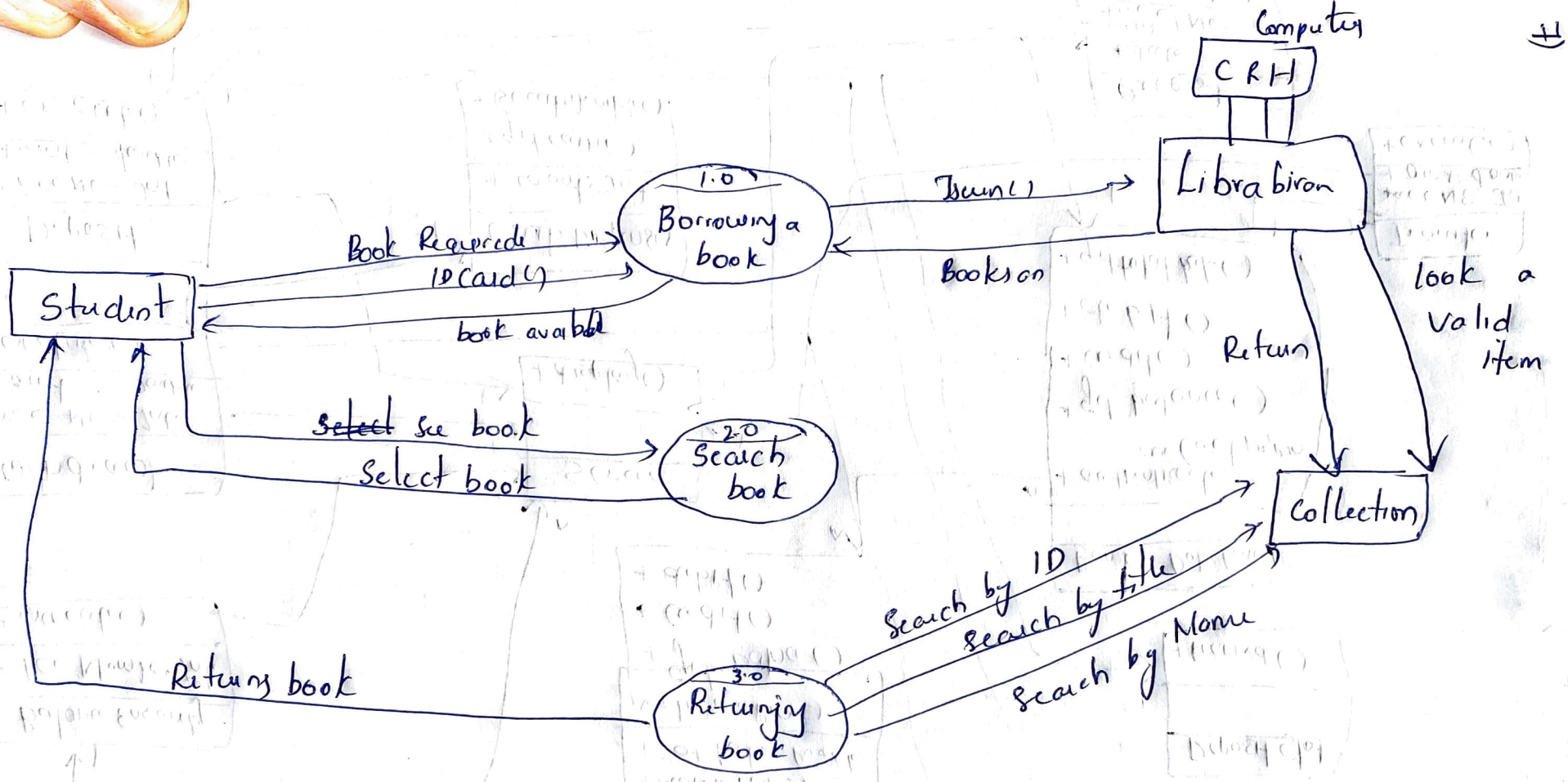
(VII) There is fault isolation all times.

Disadvantages-

- Major design faults are detected late
- Reusable artifacts are not properly tested
- how level artifacts are not tested frequently

6) Class Diagram for ATM

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Librabiran
1.0
Borrowing a book
Issue()
Book Requested
ID Card()
book available
Books on
Student
look a valid item
Return
Select see book
2.0
Search book
Select book
Collection
Search by ID
Search by title
Search by Name
Returning book
3.0
Returning book

8) Functional Testy

1) Read the inserted card
2) check wether pin is correct or not
3) If correct pin do operations
4) Deposit & check denomination & display amount ask for confirmation
5) Complete Deposit
5) For withdraw. check if amount is > $200 or not, if grater than $200 reject, else dispense cash by checky
6) Display Balance
7) Transfer
- Validate acc No, funds in range ant print receipt
8) quit, card ejected

8) Test cases are

Equivalence Testing:

1) with draw amount quater than $200
(Equivalence class 3)

2) with draw amount $200
(Equal class 2) in boundary condition

3) withdraw amount < $0
(Equivalence class 1)

4) For teantes
check account Num valid (class 2)
No of digits less than acc No (class 1)
" quater than acc no. (class 2)