

Object

Object :- object is something which has state behaviour identity & responsibility

State :- attributes + values

behavior :- response given to outside world

identity :- uniqueness associated with object

Responsibility :- role of an object

Example object - fan

• State :- Speed level, Color, Size

• Behaviour :- Rotate, increase / decrease speed

• Identity :- Serial number

• Responsibility :- provide air circulation

Object :- object is something which has state behaviour identity & responsibility

State :- attributes + values

behaviour :- response given to outside world

identity :- uniqueness associated with object

Responsibility :- role of an object

② Example object Library

State :- Books, members, staff, racks

behaviour :- Issue book, return book, add book

Identity :- Library ID / System

Responsibility :- Knowledge resource management

③ Object :- object is something which has state behaviour, identity & responsibility

State :- attributes + values

behaviour :- responds given to outside world

identity :- uniqueness associated with object

Responsibility :- role of an object

④ Example object Dog

State :- Breed, colour, age

Behaviour :- Bark, Run, eat

Identity :- Pet tag / microchip

Responsibility :- guarding (Agg)

object :- object is something which has state behavior identity & responsibility

state :- attributes + values

behaviour :- respons given to outside word

identity :- uniqueness associated with object

responsibility :- role of an object

Example :- student

- **state** :- Name, rollno, age, grade, gender
- **behavior** :- study, attend class, write exams
- **identity** :- Rollno
- **Responsibility** :- learn and knowledge

?) **object** :- object is something which has state behavior identity & responsibility

State :- attributes + values

behavior :- respons given to outside word

identity :- uniqueness associated with object

responsibility :- role of an object

⑤ Example

Teacher

- State :- Name, employee ID, Subject specialization
- behavior :- Teach, evaluate, guide students
- identity :- Employee ID
- Responsibility :- Educate and guide learners

⑥ object :- object is something has state behavior identity + Responsibility

State :- attribute + value

behavior :- respons to given outside word

identity uniqueness associated with object

Responsibility, role of an object

⑦ Example

Mobile phone

- State Brand, model, Battery level, storage
- behavior :- call, send message, browse internet
- identity IMEI number
- Responsibility :- provide communication

⑦ Object object is something which has state
behavior identity & Responsibility,
State attribute + values

behavior Response given to outside word

identity uniqueness associated with object

Responsibility role of an object

⑧ Example pen

State ink, colour, brand, type

behavior write, draw

identity Serial number / Brand

Responsibility: helping writing & drawing

⑨ Object object is something which has state
behavior identity & Responsibility

State attribute + values

behavior Response given to outside word

identity uniqueness ~~are~~ associated with object

Responsibility role of an object

⑧ Example

Flight

State flight number, airline, capacity, location

Behavior take off, land, fly

identity flight number

responsibility Transport passenger and cargo

⑨ Object

Object is something which has State behavior identity & Responsibility

State attribute + values

behavior Respons given to outside world

identity uniqueness associated with object

Responsibility role of an object

⑩ Example

Laptop

State Brand, Ram, storage, processor

behavior Boot, Run Software, Shut down

identity Serial number

Responsibility perform computational task

(10) **Object** :- Object is something which has state behavior identity & Responsibility.

State attribute + value

behavior response given to outside world

identity uniqueness associated with object

Responsibility role of an object

b) **Example** Car

State color, number of door, model, fuel, Speed

behavior Start, Stop, break

identity Registration number

Responsibility transport people from one place to another

Abstraction

Abstraction is selective ignorances at the extend of abstraction we get state an object

person

name - email

age - blood group

gender - height

address - weight

mobile number - job profile

date of birth - Aadhar number

nationality - marital status

language spoken - years of experience

annual income - physical disabilities

region - highest education - graduation year

dietary restrictions - certification

past surgeries - emergency contact phone

Employee Dashboard System

Name

Email

Gender

mobile number

Date of birth

Aadhar number

Job profile

years of experience

Annual income

Highest education

Graduation year

Language Spoken

Address

Nationality - Bloodgroup

Hospital management system

Name

Email

Age

Gender

mobile number

Date of birth

Aadhar number

Job profile

Blood group - Height

Weight - physical disabilities

Dietary restrictions

Marital status - Address

Past surgeries

② Abstraction:- Selective ignorance at the end of abstraction we get state of object

Student

Name, - rollno - Department

Class - gap years - Sports

pass year - id card - year

Age - Address - books ~~not~~

Subjects - marks - notebook

Attendance - fees - email

Guardian Details - mobile no

Blood group - DOB - Grade - Gender

Library System

Name

rollno

Class

Section

books

id card

Course

year

Examination System

Name

roll no

id card

marks

fees

attendance

Department

3) Abstraction :- selective ignorence at the end of abstraction we get state an object

Bank Account

Account no - Holder name

Type of account - Balance

Branch - IFSC - Aadhar card

PAN - mobile number

Email - Address

Transaction - Loan Details

ATM card - KYC details - ATM pin

Deposit - withdrawal

ATM System

Account no

Holder Name

Balance

withdrawal

ATM pin

~~loan~~

Loan management

Account no

Holder name

address

Aadhar card

mobile number

Email - PAN

~~loan~~ ~~loan~~ Details

4) Abstraction:- Selective ignores at the end of abstraction we get state an object

product

product Id , Name

Brand - Category

price - Quantity,

Supplier - manufacturing Date

Expire Date - Warranty

Batch No - Transporting Details

Size , color , Reviews - Discount

Barcode - Expiry Date - Quality

sets.

Salse System

product Id

Name

price

Quantity

Discount

warranty

manufacturing Date

Barcode

~~Expire Date~~

Inventory System

product Id

Name

Brand

Category

Quality

Supplier

manufacturing Date

Abstraction :- Selective ignores at the end of abstraction we get state an object

vehicle

Model - year - Colour

Engine type - Hores power - Torque

Fuel efficiency - Number of doors

Seating capacity - number plate

Ches number - insurance policy

Owner information - Avrage

Registration details - fuel type

Last Service date

Air bags - maintenance history

Reant car system

Model - year

Colour

Number of doors

Seating capacity

Number plat

Air bags

Fuel efficiency

Fuel type

Avrage

Vehicle maintence system

Model - year

Engine type - odometer reading

Maintences history

Last Service dat

Horespower

⑥ Abstraction :- Selective ignorances at the end of abstraction we get state on object

Book

Title - Author - ISBN

publisher - publication Date

Number of pages - Genre

language - Edition

Binding type - hard cover - paperback

Dimensions - Table of contents

Summary - Review/Rating

Awards Received - printing history

Copyright information

Translator

online BookStore

Title

Author

ISBN - publisher

publication Date

Number of pages

Language

Binding type

Summary

Review

Rating

Library management System

Title

Author

ISBN - publisher

publication Date

Number of pages

Binding type

location of library

Edition

Availability Status

Abstraction :- Selective ignorers at the end of abstraction we get state an object

Animal

species - height

names - Breed

age - diet - Animal type

habitat - lifespan

number of lags

Sound - weight

gestation period - vaccination

Colour - medical history

Behaviour Notes - Training Status

Zoo management System

Name

Species

Age

Gender

Habitat

Diet

Life Span

Weight

height

Pet clinic System

Name

Species

Breed

Age

Gender

Colour

Weight

medical history

Owner

microchip ID

Abs

~~Abstraction~~: Selective ignoring ~~at the end of~~ abstraction we get state or object

flight

Flight Number

Airline - Source Airport

Destination Airport

Departure time

Arrive Time - Duration

Ticket price - capacity

pilot Name

Crew members

Gate Number - flight ~~status~~ status

Aircraft Type - fuel consumption

Airport management system

Flight Number

Airline

Source Airport

Destination Airport

Departure time

Arrival Time

Gate Number

Flight ~~status~~ status

Aircraft Type

~~Airport~~

Ticket Booking System

Flight Number

Airline

Source Airport

Ticket type

Departure time

Destination Airport

capacity

Ticket price

Abstraction :- Selective ignorers at the end of abstraction we get state an ~~object~~ object

Course

Course ID

Course name

Department

Instructor name

Duration (months / years)

Credits - fees - language of instruction

Syllabus - time table

Prerequisites - Batch mode

Exam pattern - online - offline

Certification provided - start date

Batch Strength - end date

Student portal

System

CourseID

Course name

Department

Instructor name

Duration - online

Credits - offline

Syllabus

Timetable

~~mode~~

fees management

System

CourseID

Name course

Department

Fees

Batch Strength

Duration

Start Date

End Date

⑥ Abstraction :- Selective ignorers at the end of abstraction we get state or object

Teacher

Name

Gender - Date of Birth

Email - mobile number

Address - Department

Teaching Subject - Teacher ID

Qualification - Experience

Salary - Bank Details

Publications - Certifications

Joining Date - Retirement Date

Performance Reports

Academic management

System

Teacher ID

Name

Department

Teaching Subject

Qualification

Experience

Joining Date

Certification

Gender

payroll system

Name

Teacher ID

Department

Salary

Bank Details

Joining Date

Retirement Date

Mobile number

Email

En Capsulation

Encapsulation :- Binding & Hiding of state & behavior By default BECAUS inseparable in real life

Bank Account

account holder name	string
account Number	int
current Balance	double
account type	String
contact number	int
pan card number	int
aadhar Number	int

deposit();
withdraw();
check Balance();
transfer money();

Encapsulation :- Binding & Hiding of state & behavior By default Because inseparable in real life

Car	
Engine status	boolean
Fule level	double
Speed	int
gear	int
chesinumbe	int
Startcar();	
Stopcar();	
accelerate();	
break();	
change gear();	
get Speed();	

Capsulation :- Binding & Hiding of State & behavior By default Becaus inseparable in real life

video player software

current video String

volume level int

play back position double

in playing

play video ()

pause video ()

Stop video ()

Set volume ()

get current status e ()

Encapsulation:- Binding & Hiding of State & behavior By default Because inseparable in real life

ATM

Card number	String
pin	int
balance	double
bank service connection	boolean

insert card (String cardnumber)

Enter pin (int pin)

withdraw cash ()

check Balance()

deposit cash ()

transfer function (to account)

Encapsulation :- Binding & hiding of state & behavior By default Because inseparable in real life

Library System

bookList String

issueBook : map String

fine Amount double

libraryName String

add book ()

remove book ()

issue book ()

Return book ()

calculate fine ()

get Available Book ()

Encapsulation :- Binding & Hiding of State & behavior By default Because inseparable in real life

mobile phone

mobile number String
sim card number String
Contact list int
battery level int
is locked boolean
Storage int

makecall()

Send messages()

install apps()

unlock phone()

check balance()

Encapsulation :- Binding & Hiding of state & behavior By default Becaus inseparable in real life

Student

student name	String
roll no	int
mark	double
grade	char
address	String
phone number	int
email	String

get Details()

update Address()

update phone()

calculate Grade()

get Marks()

Encapsulation:- Binding & Hiding of State
4 Behavior By default Because inseparable
in real life

Railway Reservation

trainnumber int
train number string
Set Availability int
fare double
Tickets string
PRN record map string

BOOK TICKET()
CANCEL TICKET()
CHECK AVAILABILITY()
GET PRN STATS()
SHOW NR TICKET()
AVAILABLE SETS()

Encapsulation - Binding & Hiding of state & behavior By default Because inseparable in real life

Social media Account

username → string

password string

message List

friends list string

posts

likes

Comments

login()

add friend()

post update()

Send message()

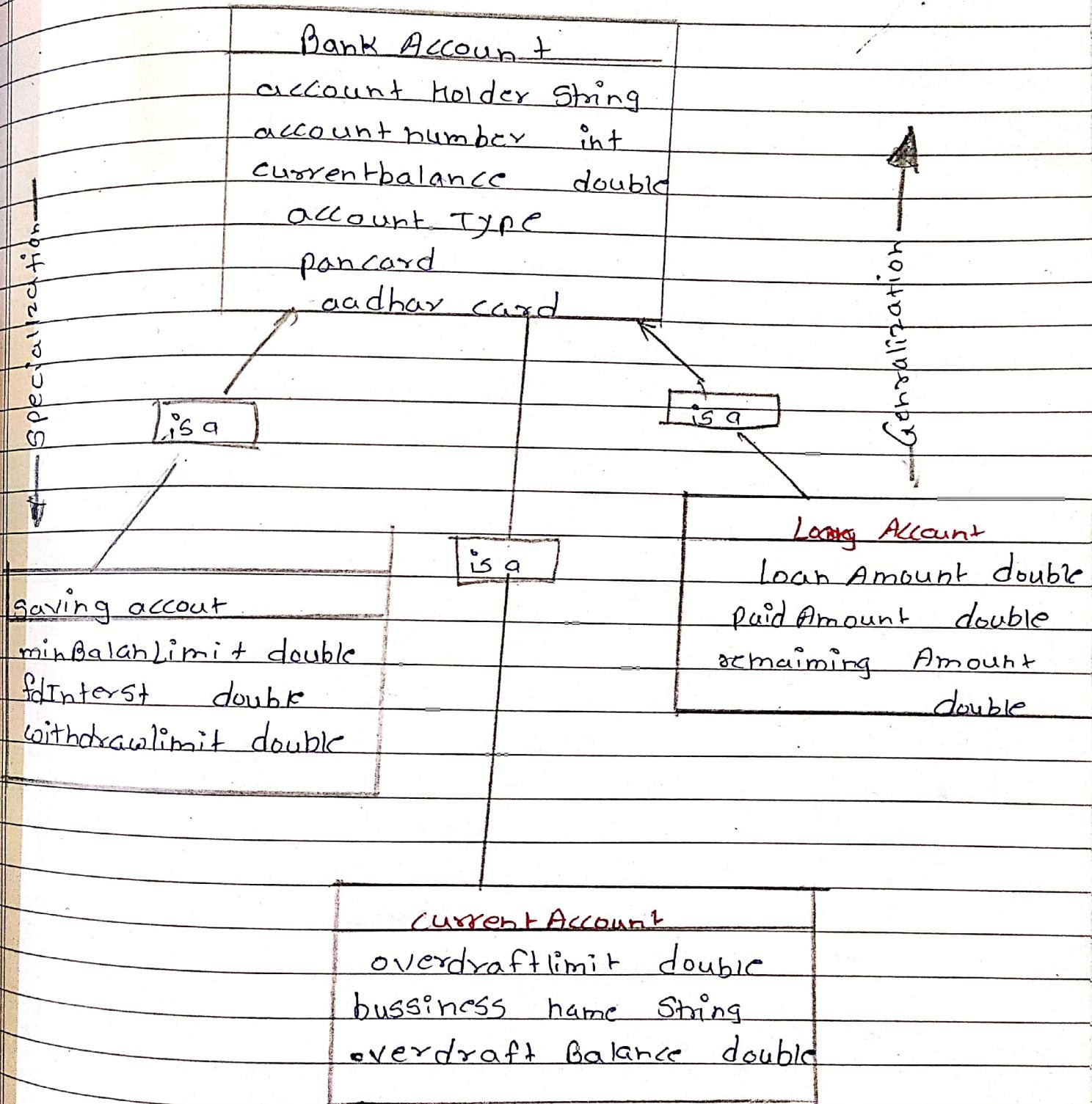
view profile()

Encapsulation:- Binding & hiding of State & behavior. By default because inseparable in real life

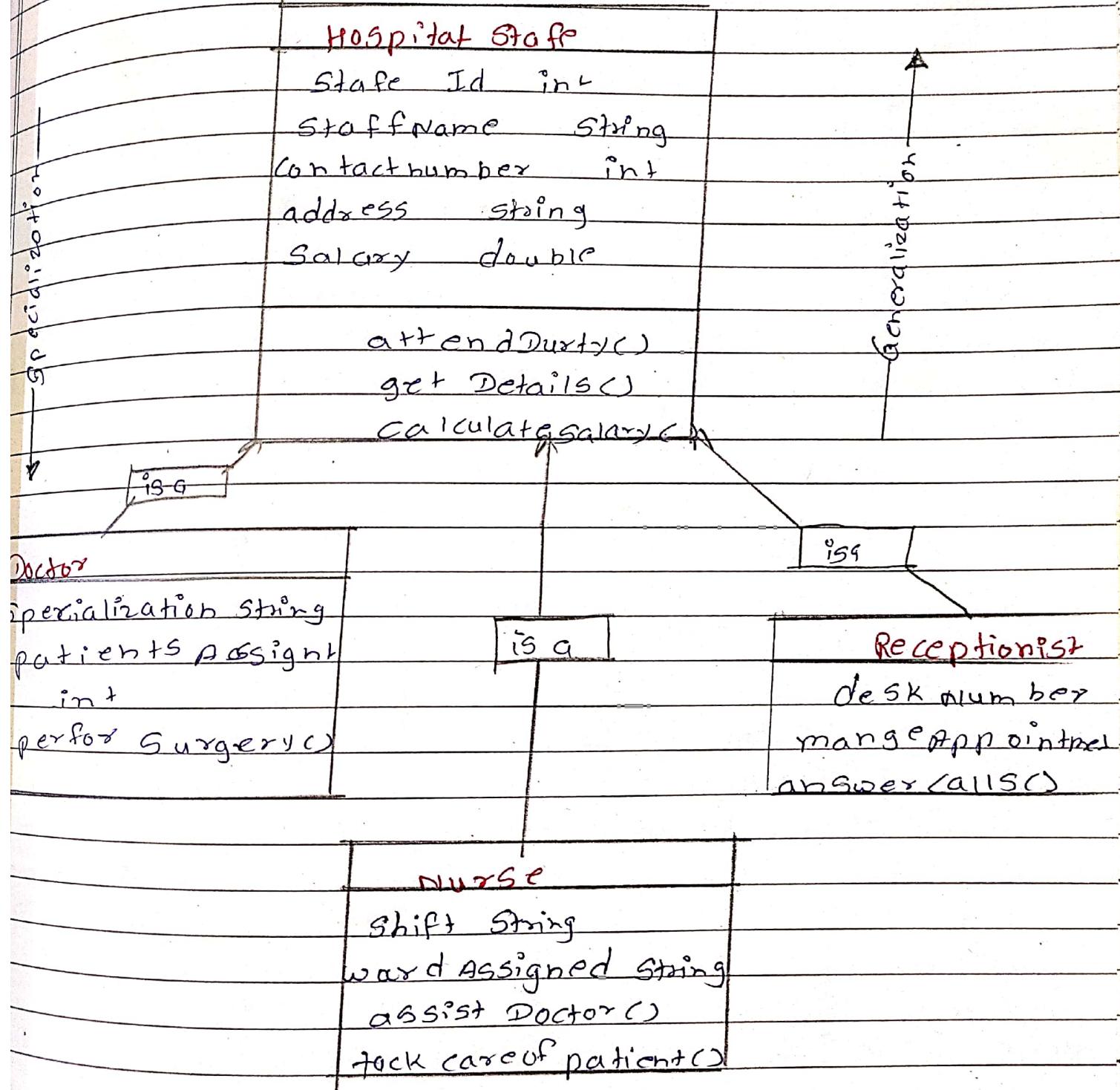
calculator	number in internal parts
	Calculation
getNumber()	
add()	
subtract()	
divide()	
multiply()	

Inheritance

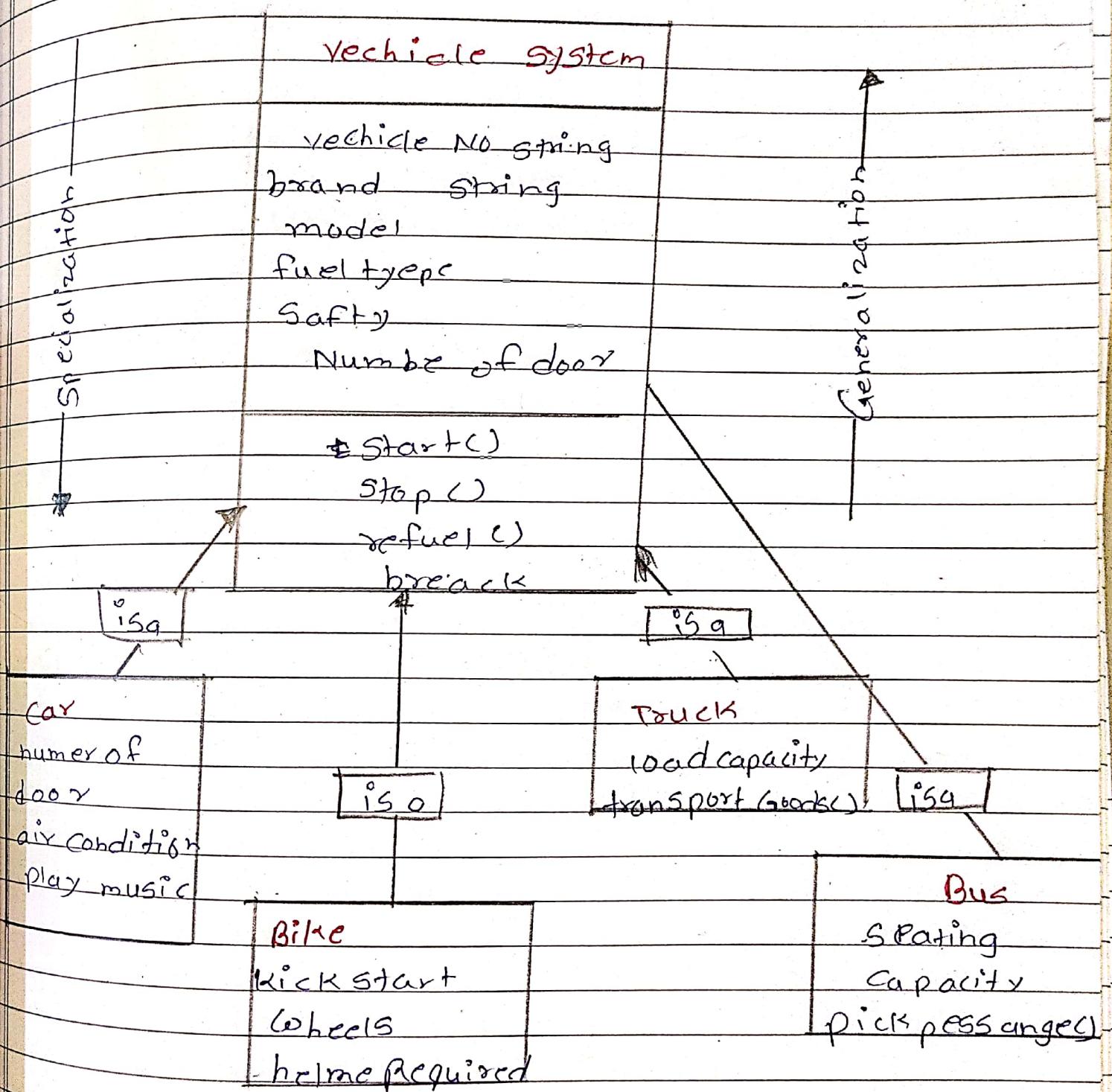
Inheritance :- reusing already define classes
with is a relationship



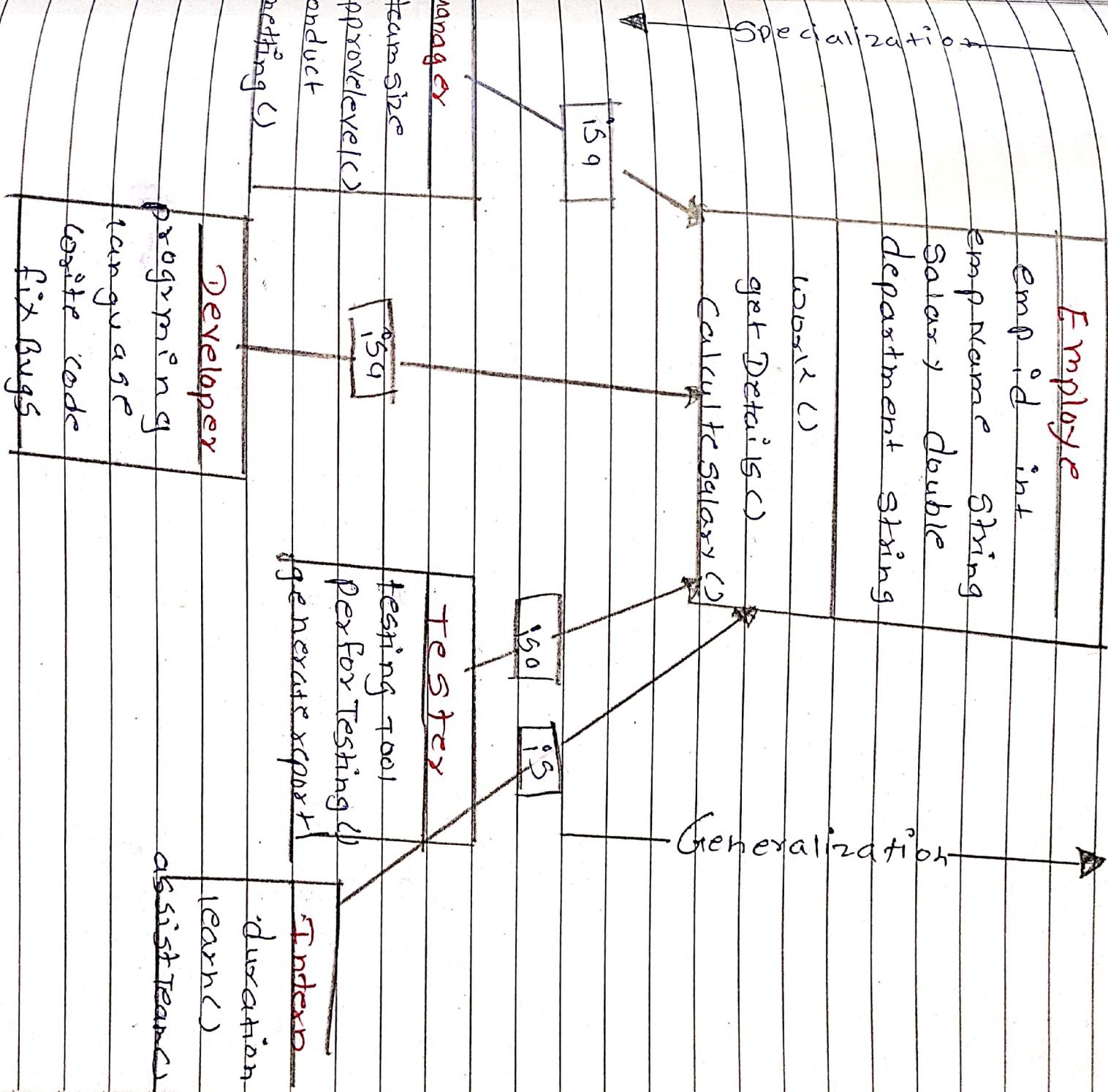
Inheritance :- reusing already define classes
with is a relationship



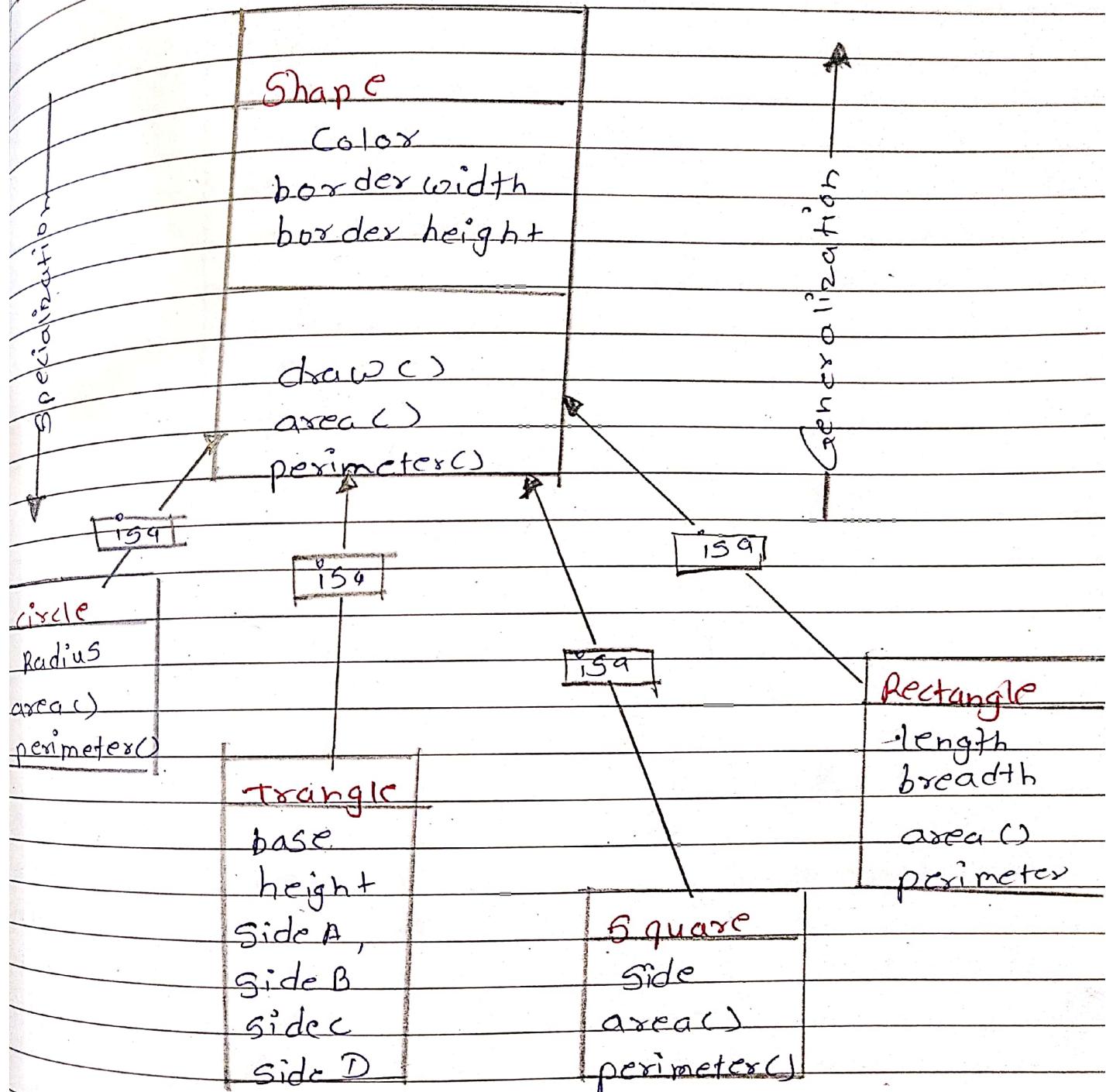
Inheritance: reusing already define classes
with is a relationship



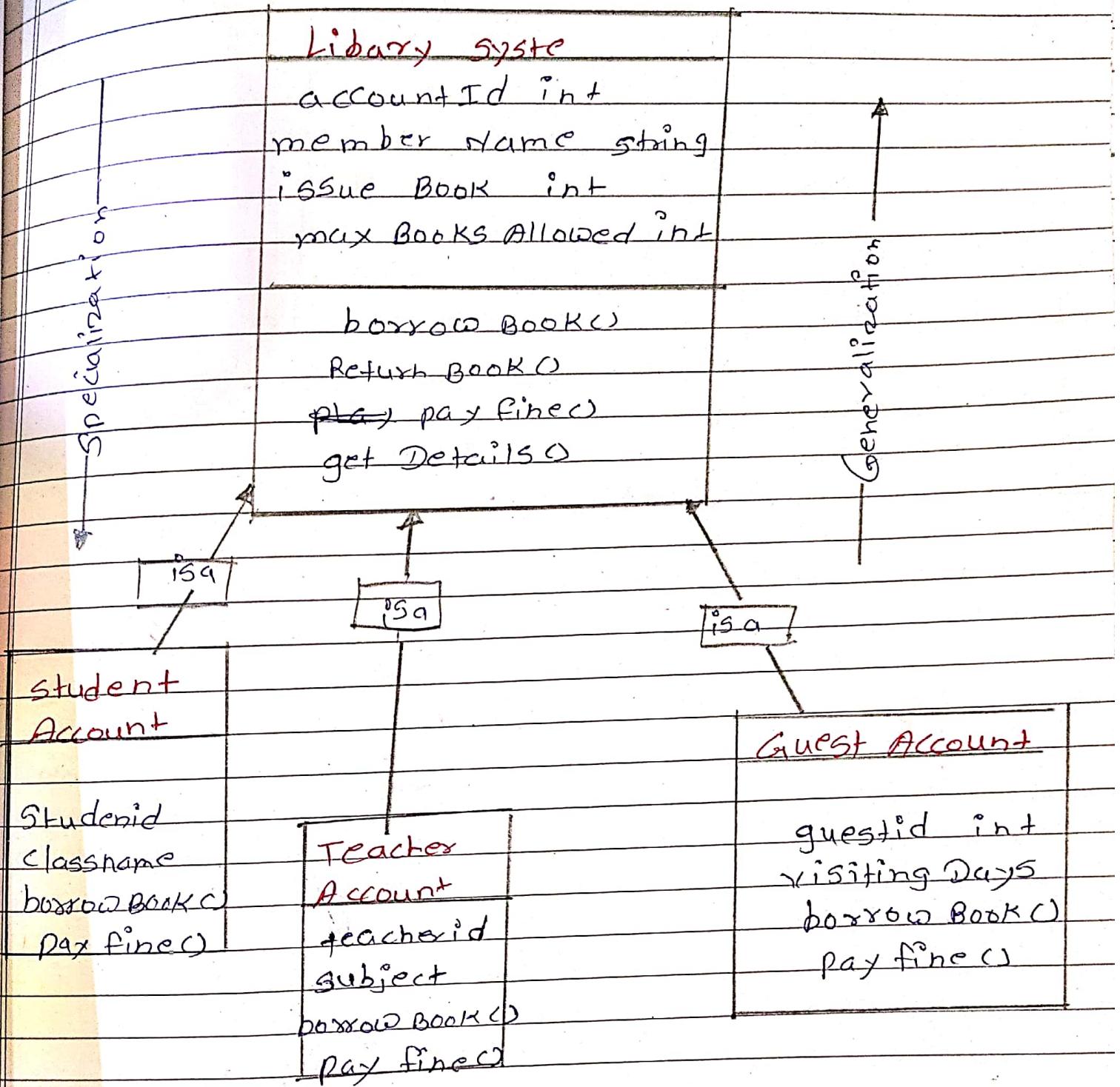
Inheritance is reusing all ready define classes
with is a relationship



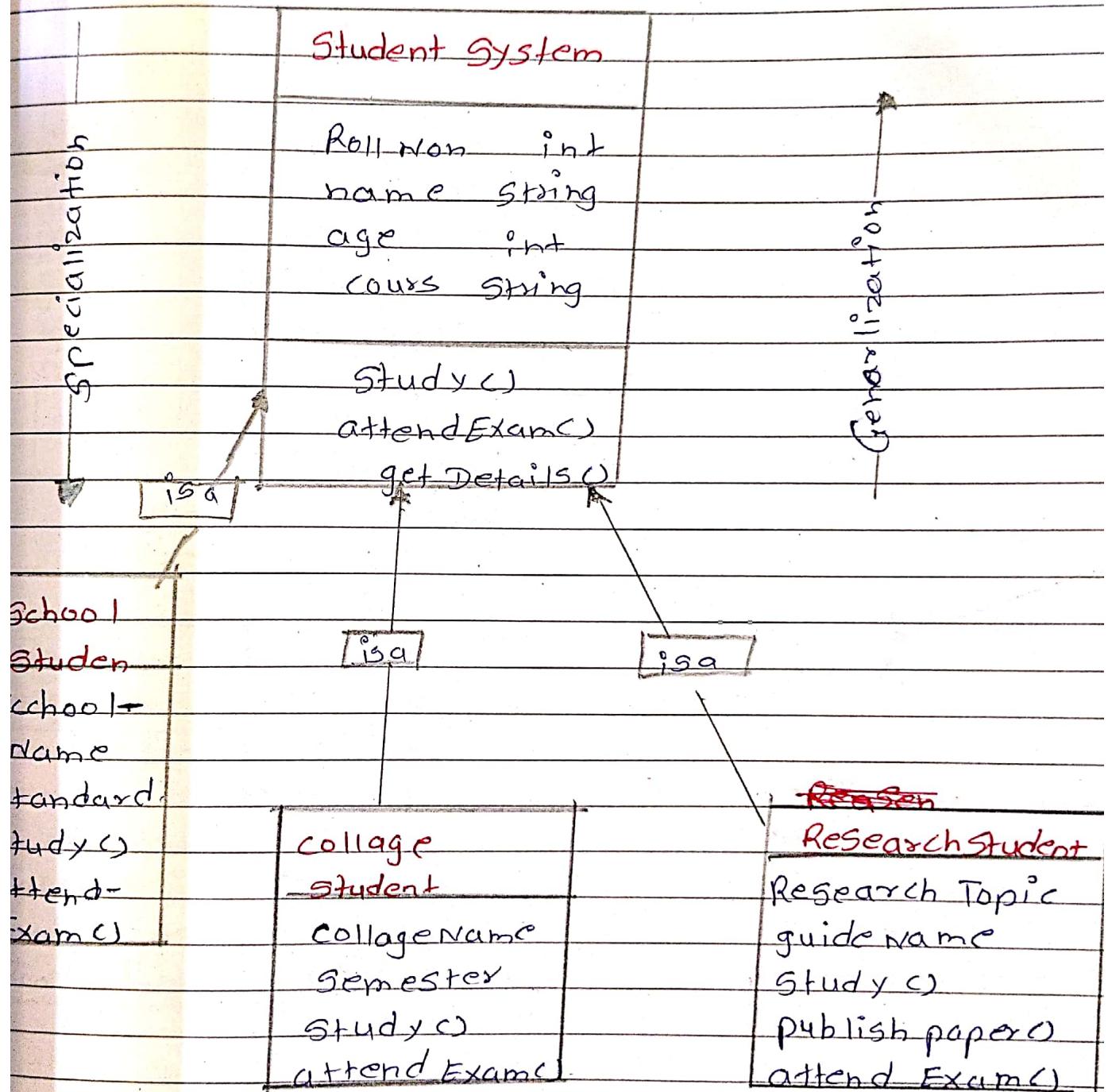
Inheritance - Reusing all ready define classes
with is a relationship



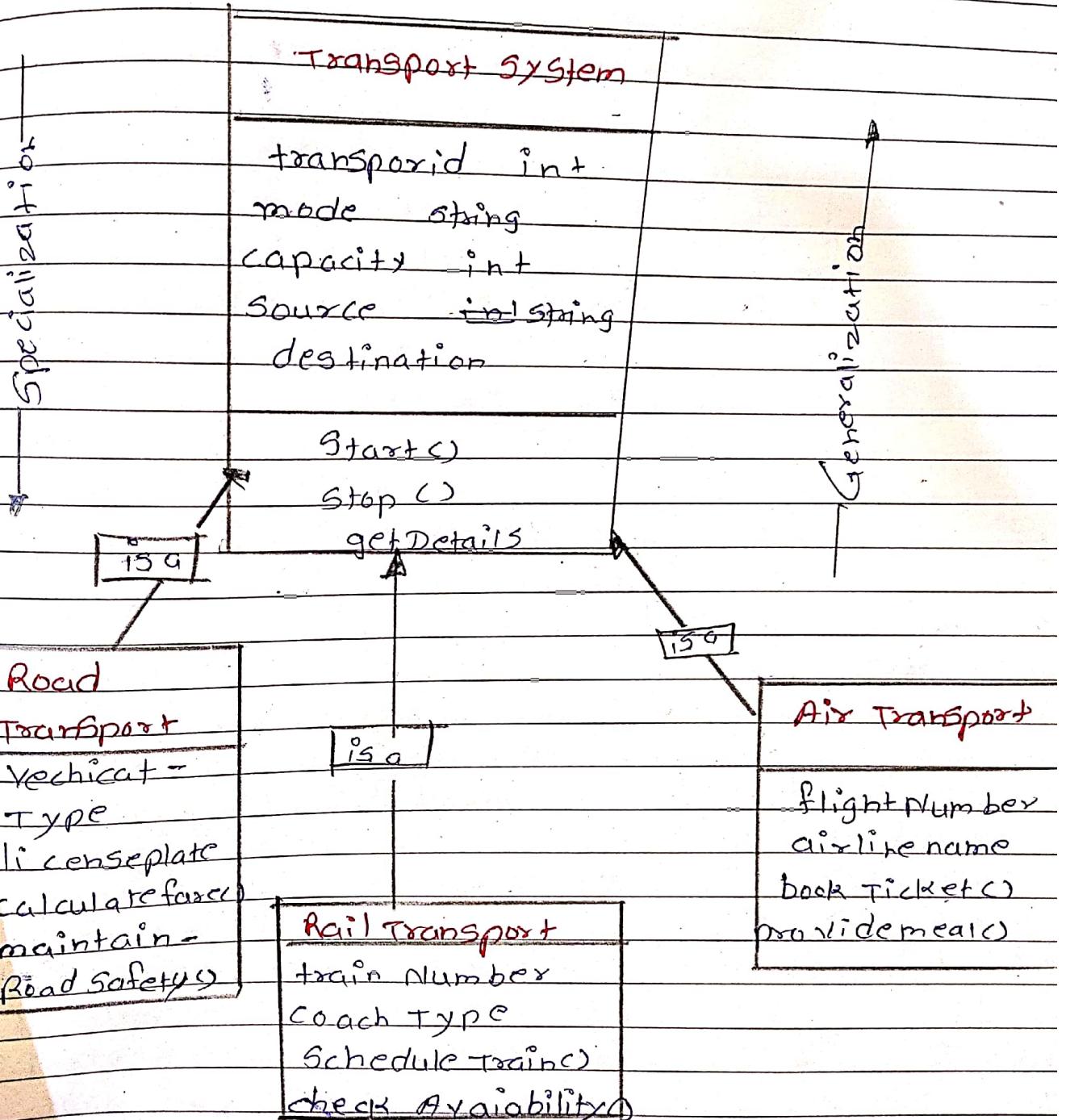
⑥ Inheritance - reusing all ready define classes
with is a relationship



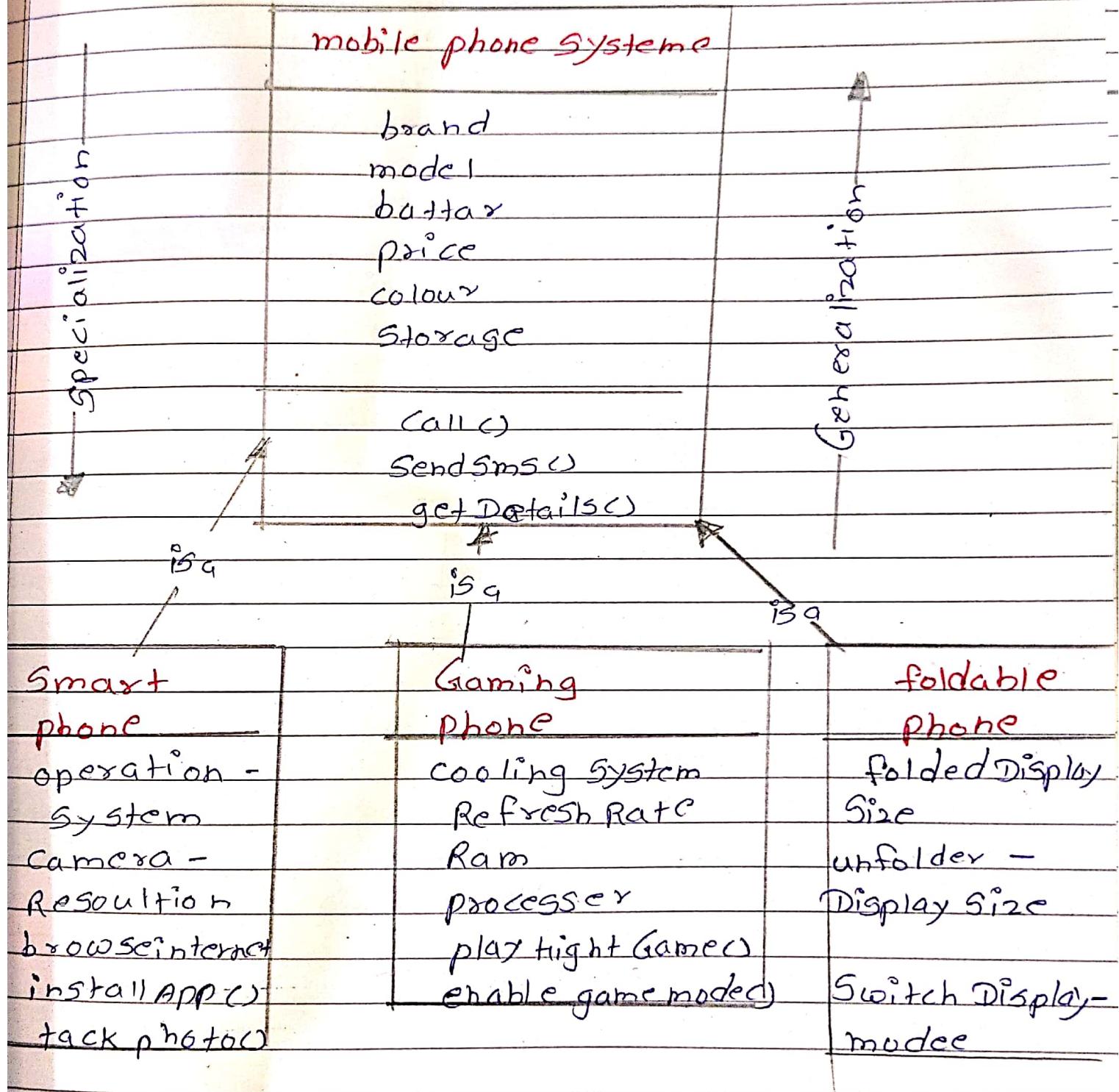
Inheritance:- Reusing already define classes
with is a relationship



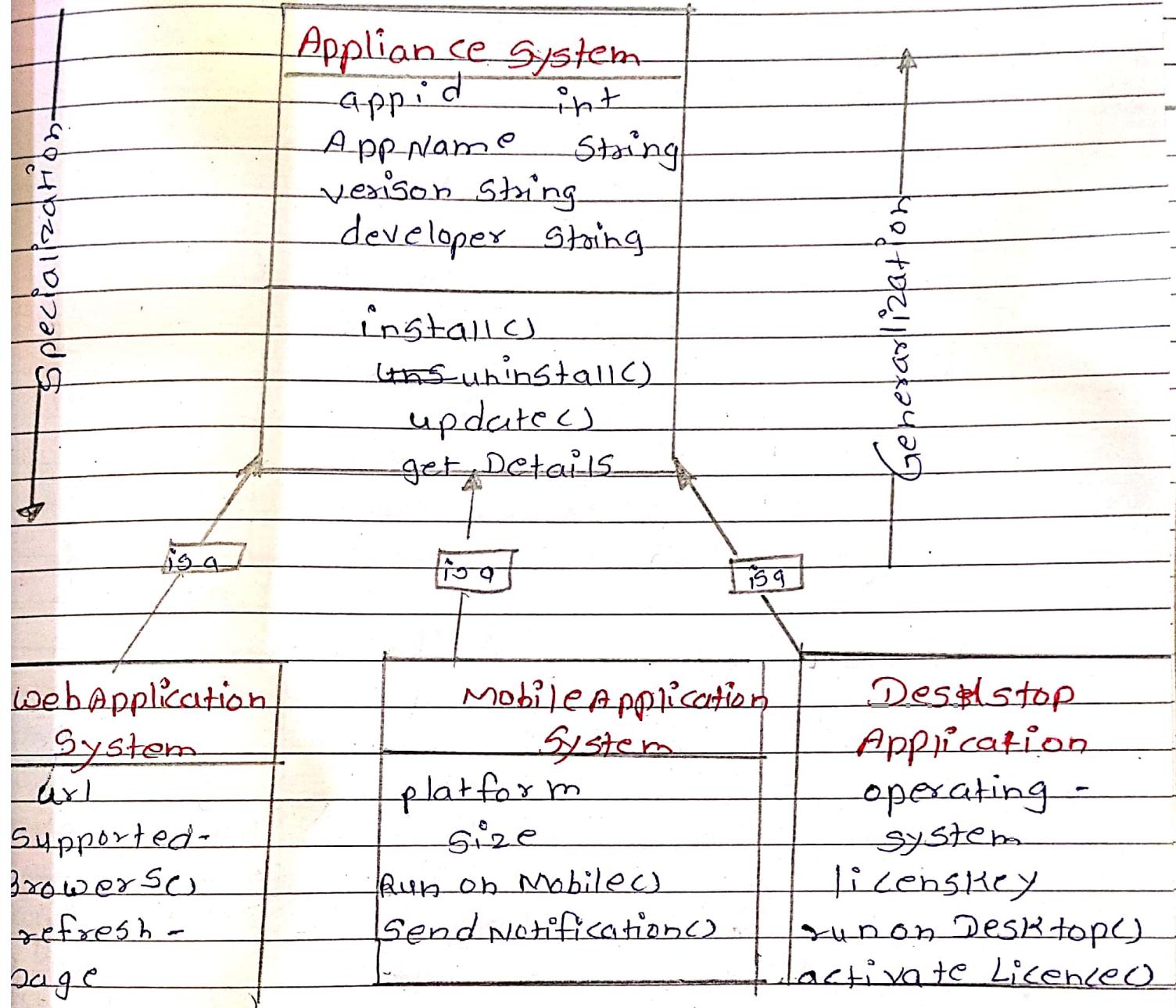
⑧ Inheritance is reusing all ready define classes with is a relationship



Inheritance:- reusing all ready define classes
with is a relationship

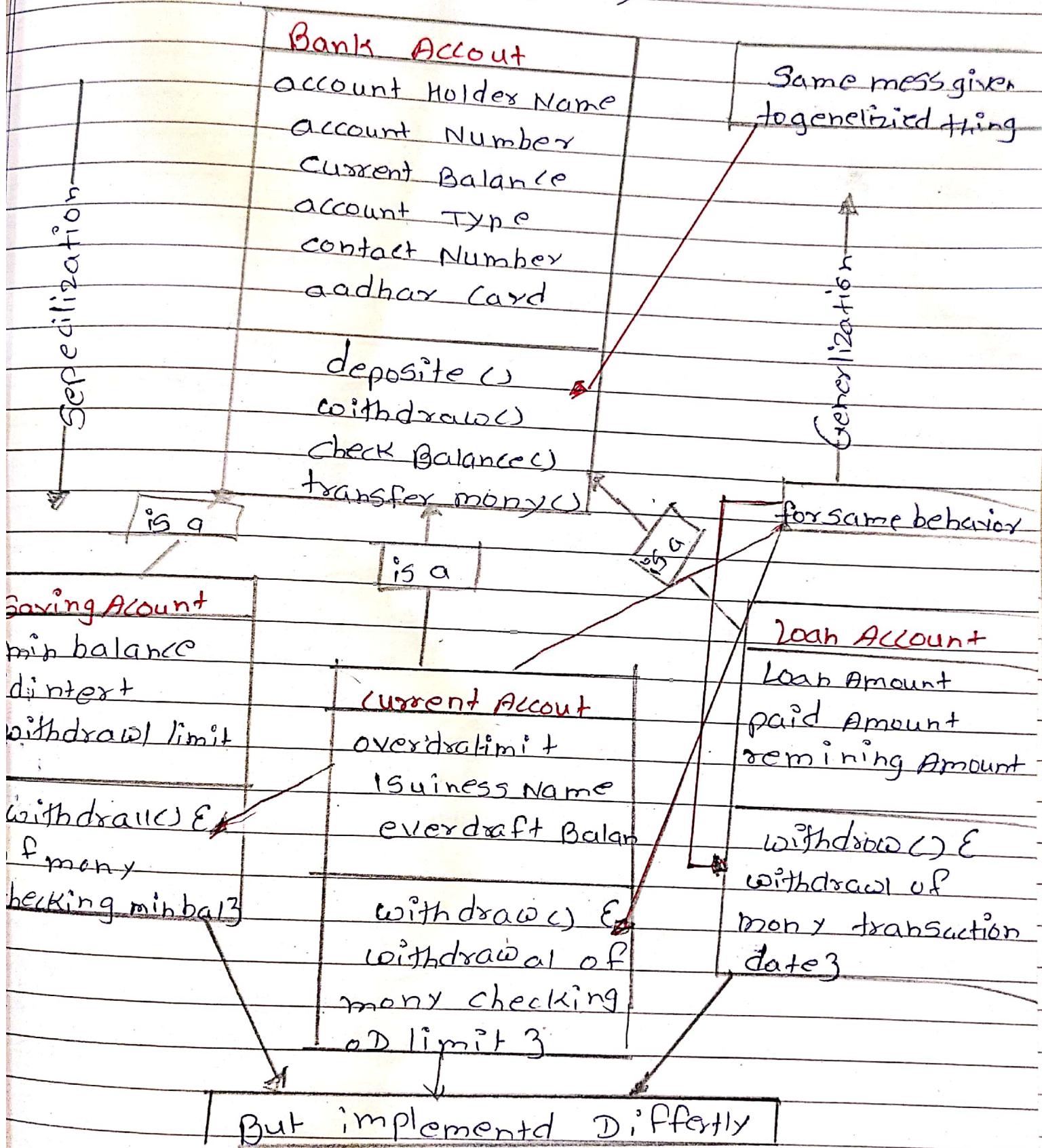


Inheritance :- reusing all ready define classes
with is a relationship

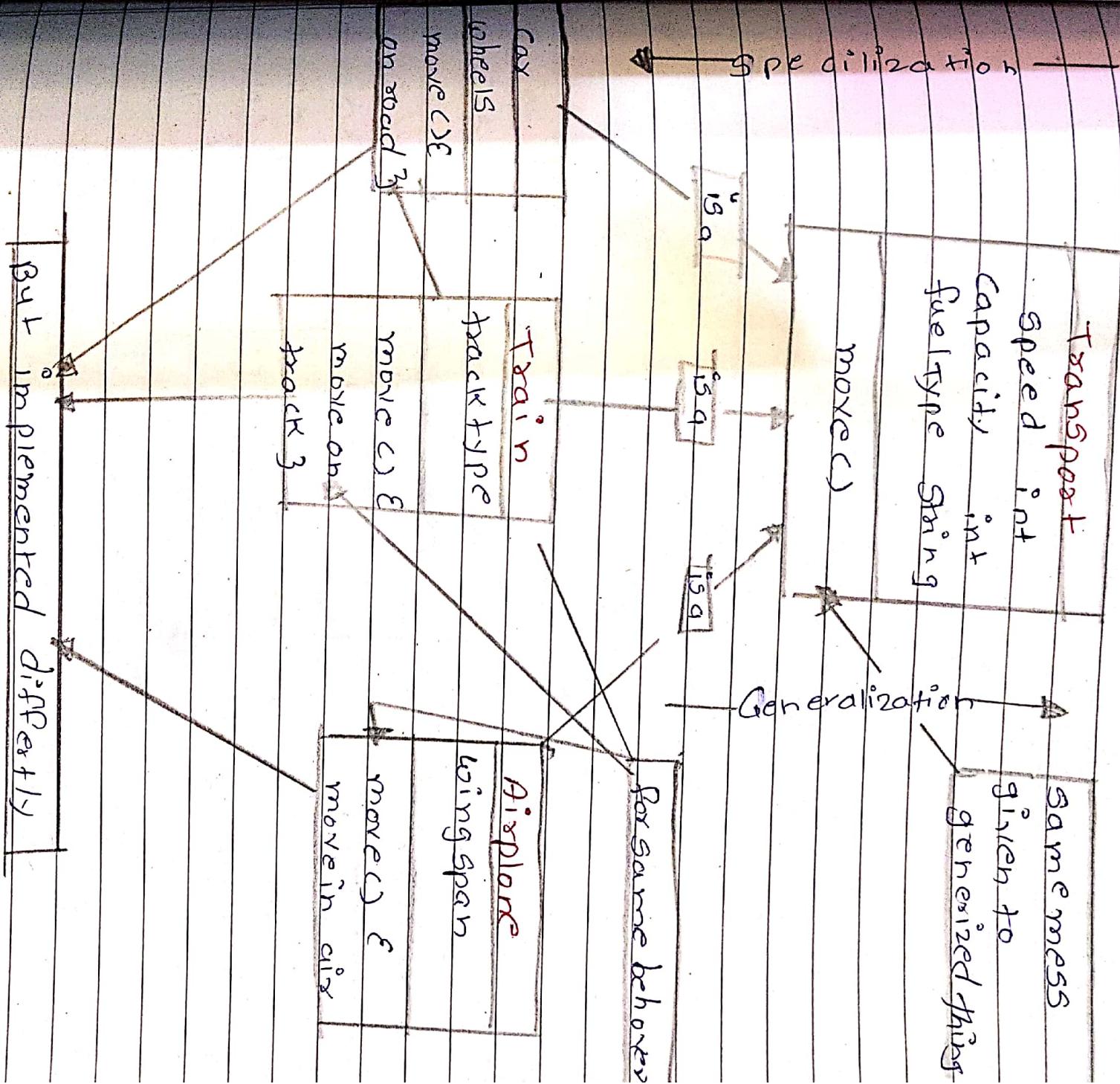


Poly morphism

poly morphism:- Same message to generalize
thing implemented for same behavior but
differently

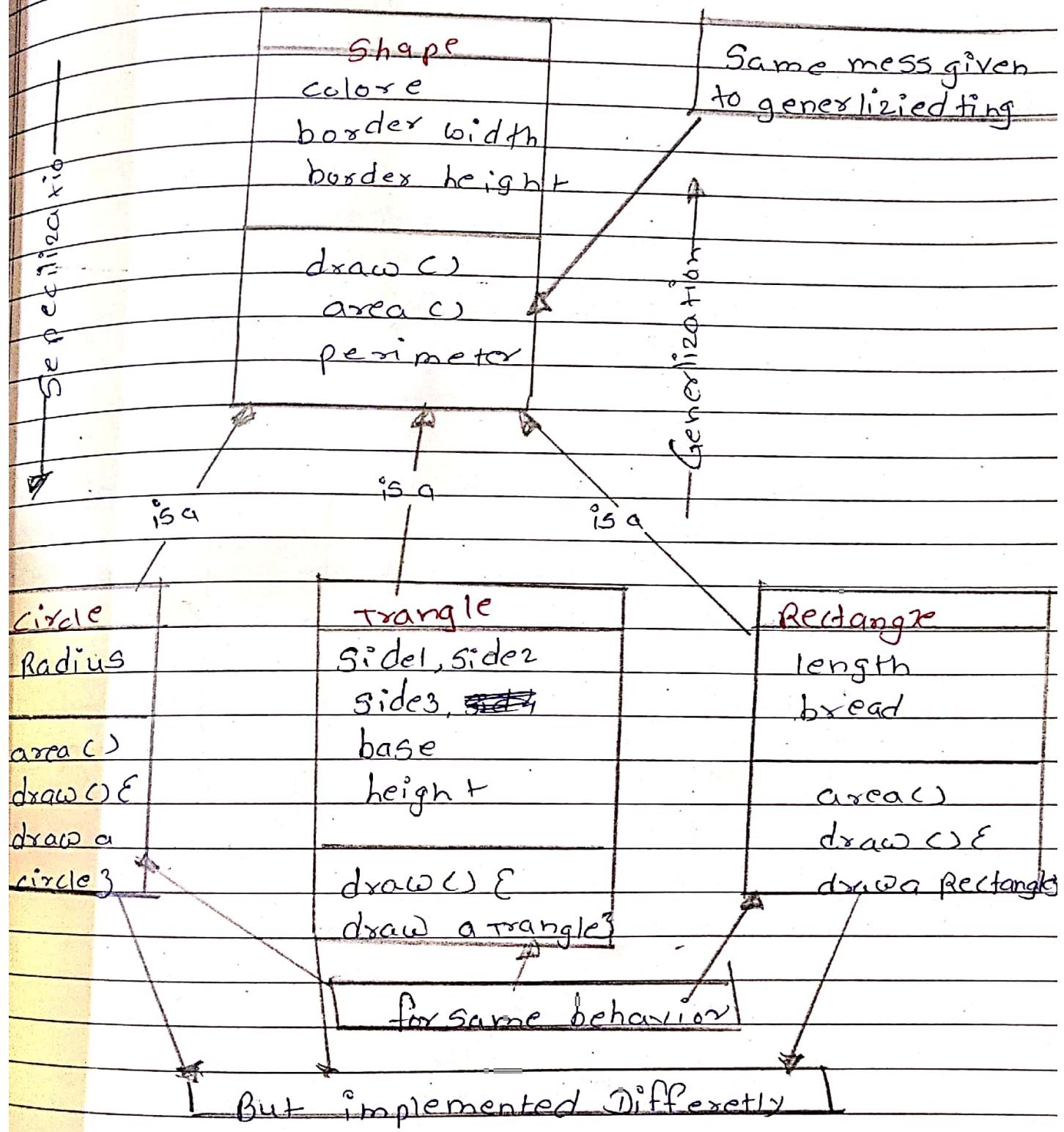


Polymorphism: Same message to generalize thing for same behaviour but implemented differently

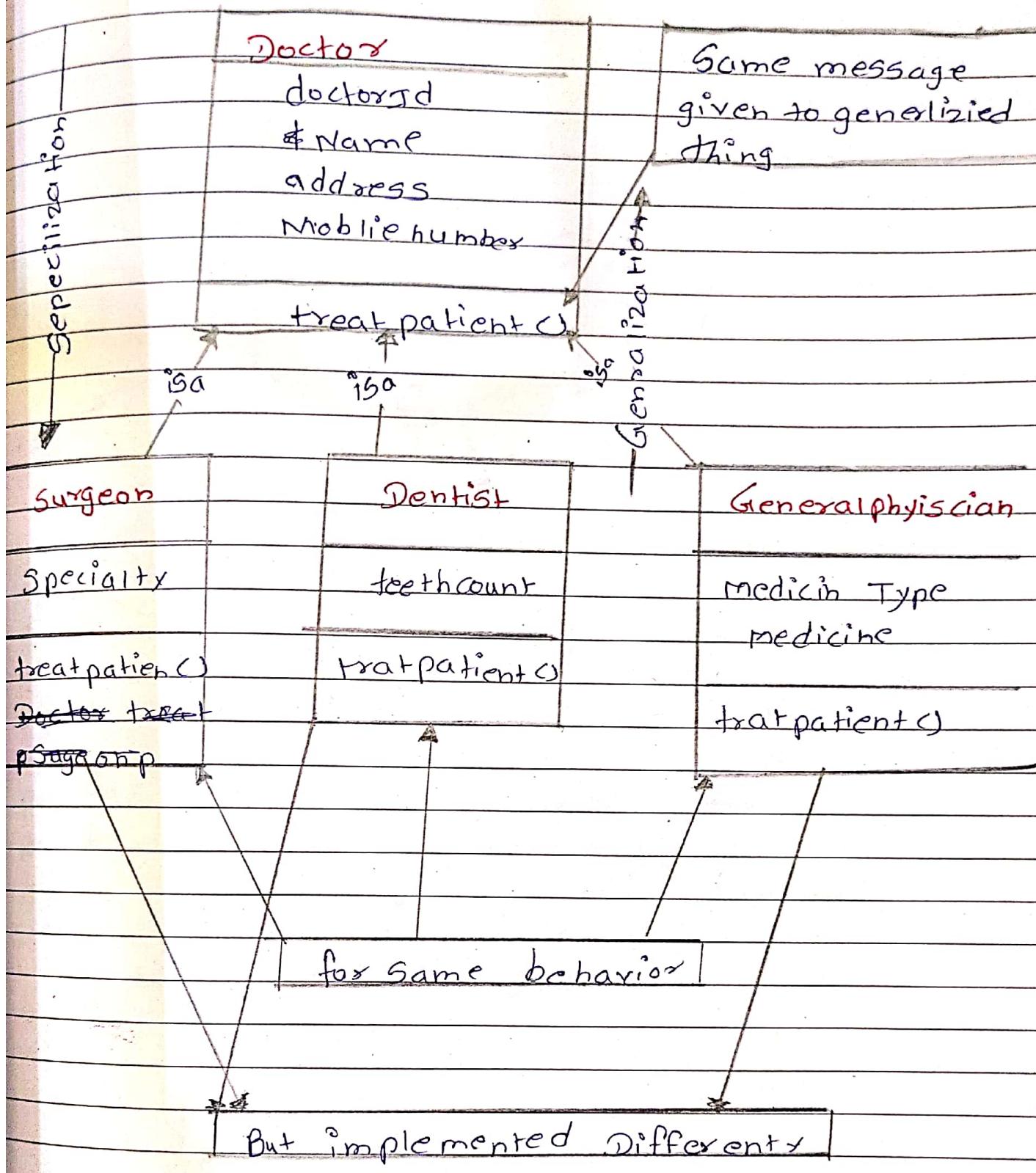


But implemented differently

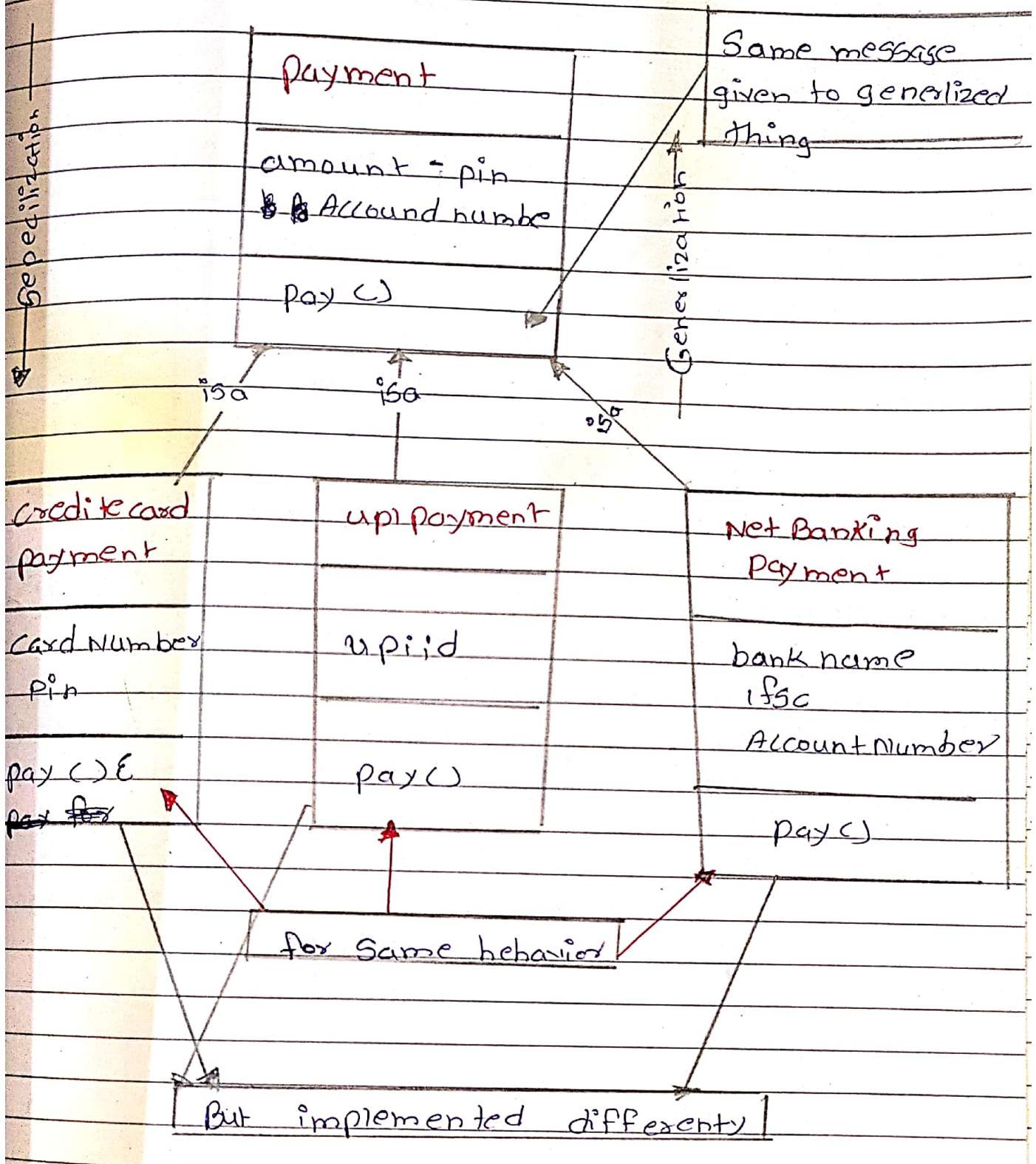
Polymorphism :- Same message to generalize thing for same behavior but implemented differently.



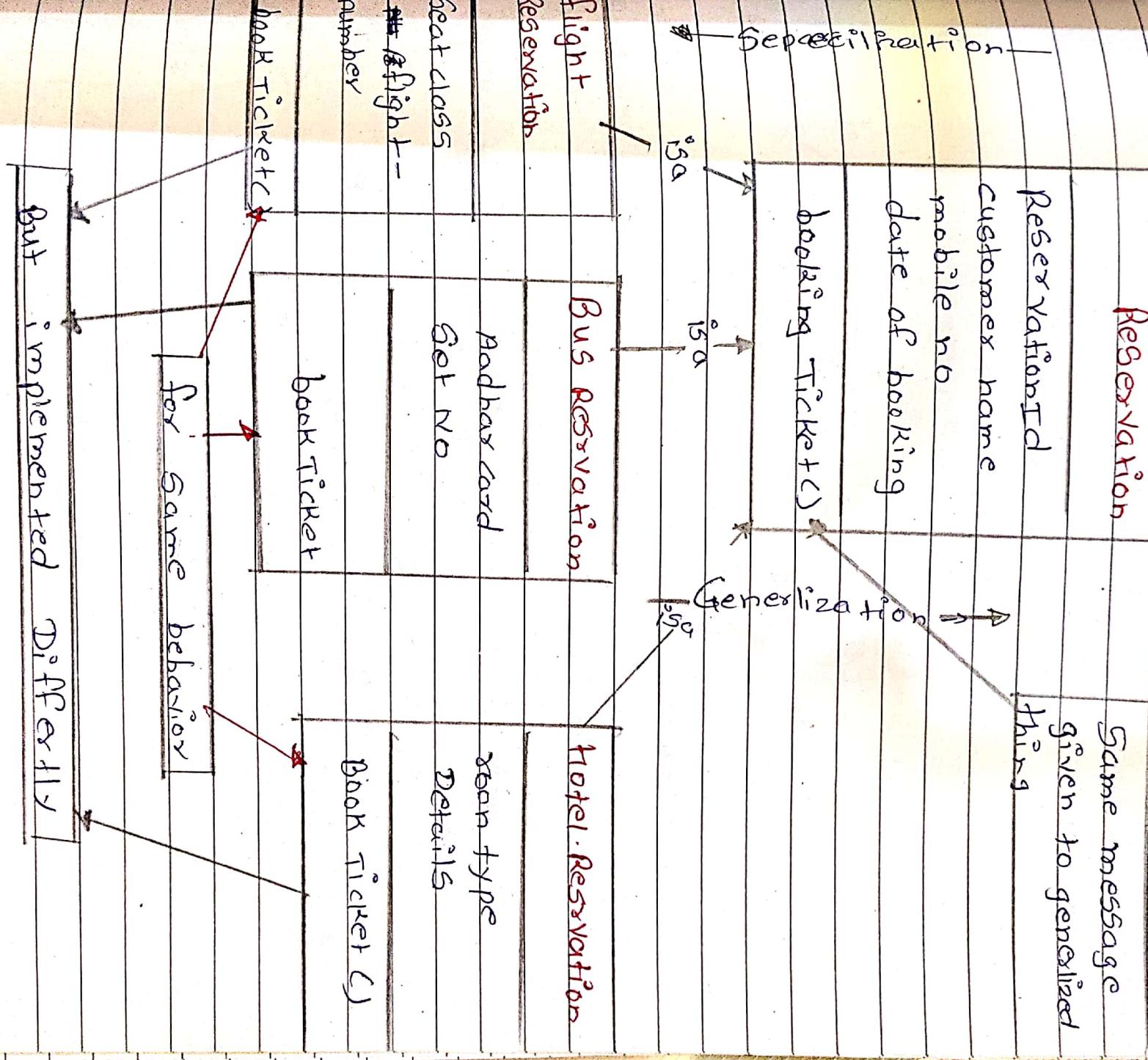
Polymorphism:- Same message to generalize thing for same behavior but implemented differently



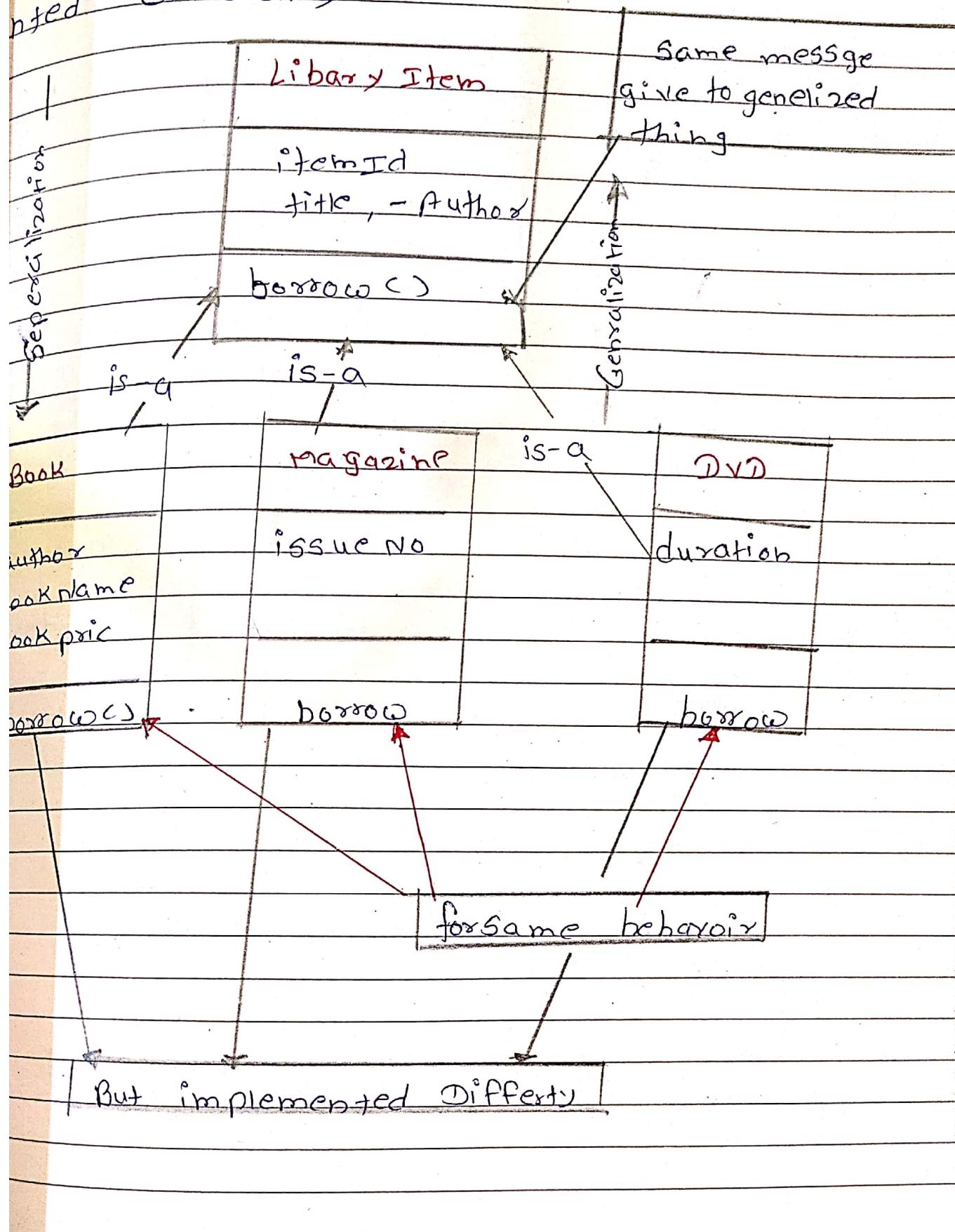
Polymorphism:- Same message to generalize thing for same behavior but implemented differently



Polyorphism: Same message to generalize thing for same behavior but implemented differently



Polymorphism: Same message to generalize thing for same behavior but implemented differently.



Polymorphism: Same message to generalize thing for same behavior but implemented differently

