

Object \Rightarrow object is something that has state, behavior, Identity, and Responsibility. is known as object.

A] State \Rightarrow State is values given to attribute.
 $\text{State} = \text{attributes} + \text{values}$.

Attributes - Color, Speed

Values - "Red", 100

B] Behavior \Rightarrow Behavior means. Response given to the outside world.

Car Behavior - start(), brake(), turn().

C] Identity \Rightarrow Identity is the uniqueness associated with an object.

D] Responsibility \Rightarrow Responsibility is the Role of an object.

Car Responsibility - To Start and Stop.

Examples \Rightarrow

1] BankAccount \Rightarrow

- State - acNumber, balance, acType.
- Behavior - deposit(), withdraw(), checkBalance()
- Identity - acId.
- Responsibility - to handle balance, transaction

2) Book -

- State Title, price, pages, Author
- Behavior open(), close(), read()
- Identity BookNo.
- Responsibility to store and show book information

3) Computer -

- State Storage, RAM, OS,
- Behavior Shutdown(), runProgram()
- Identity ComputerID
- Responsibility to process and execute commands

4) House -

- State Address, Color, RoomNo.
- Behavior openDoor(), turnOnLight(), lockDoor()
- Identity HouseNo.
- Responsibility to provide safety

5) person -

- State age, name, height, weight
- Behavior eat(), sleep(), walk(), talk()
- Identity person registration No.
- Responsibility to represent human

6) Airplane -

- State Speed, model, airline
- Behavior takeoff(), land(), changeDirection()
- Identity plane No.
- Responsibility to transport passenger

7) Teacher -

- State name, subject, experience.
- Behavior teach(), assignHomework(), checkAssignment()
- Identity teacherId.
- Responsibility to educate students.

8) Clock -

- State time, brand, batteryLevel.
- Behavior ShowTime(), setTime(), alarm()
- Identity clock product No.
- Responsibility to show time.

9) Chair -

- State color, height, material
- Behavior move(), seat()
- Identity product No.
- Responsibility to provide a place to sit

10) Laptop -

- State brand, RAM, batteryLevel.
- Behavior start(), shutdown(), charge()
- Identity laptop version.
- Responsibility to perform computing task

11) Calculator -

- State brand, lastResult
- Behavior add(), subtract(), divide()
- Identity calculator brand
- Responsibility to perform mathematical operation

Q) Abstraction \Rightarrow Abstraction is a Selective ignorance. It means we are showing a important Necessary details and ignoring unnecessary details.

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example →

Object	Necessary	Ignored
1) TV	Remote, Screen, buttons	internal Circuits. Signal.
2) Camera	Button	Lens focus.
3) lift	floor button and door	How cable pull the lift
4) ATM machine	Insert card, enter pin withdraw money	Verification, bank Netw. Comm
5) mobile phone	Call button, Camera app.	Network Signals. OS process
6) Tickets Vending machine.	Select destination, pay, get a tickets.	payment Verification printing process.
7) fan	Switch off, on.	motor wiring.
8) microwave oven	Start, timer, buttons.	heat machism
9) printer.	print Button, take pages.	ink flow
10) A.C.	depreciation control	Cooling gas System

- 3) Encapsulation \Rightarrow encapsulation is a way of binding and hiding of state and behaviour.
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ex →

1)	<u>Car</u>
	carNo. - int
	color - char[]
	price - double
	milage - float
	doStart()
	doBrake()
	doStop()
	doAccelarate()

Attribute

doStart()

doBrake()

doStop()

doAccelarate()

Behavior

2)	<u>Student</u>
	char - Name
	Rid - int
	address - char[]
	doStudy()
	doAssignmt()
	downlate()
	doRead()

Attribute

(3)

gps

Latitude - double
Longitude - double
Signal - double
location - char[]
currentSpeed - double

doGetLoc()

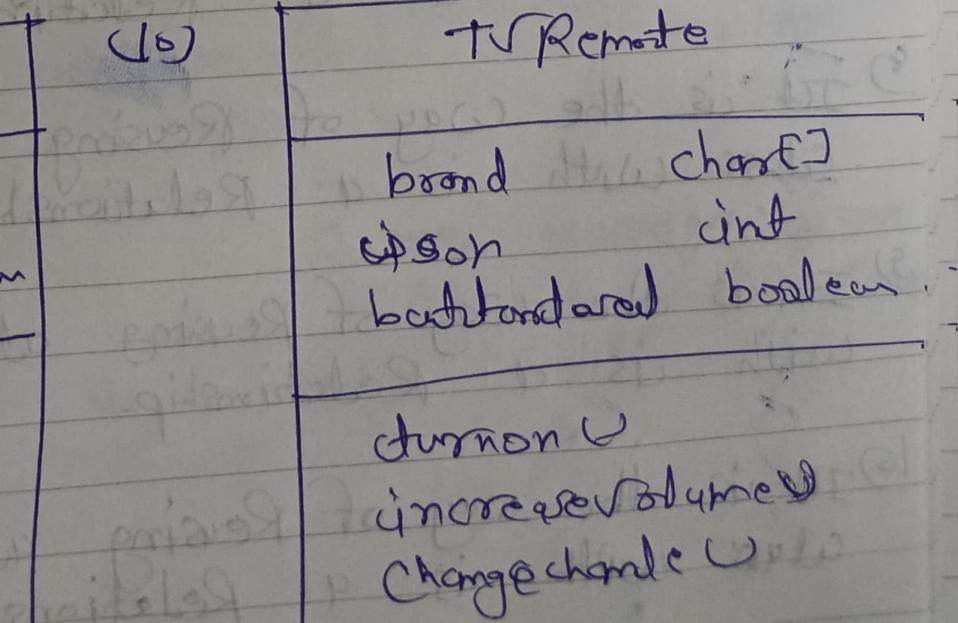
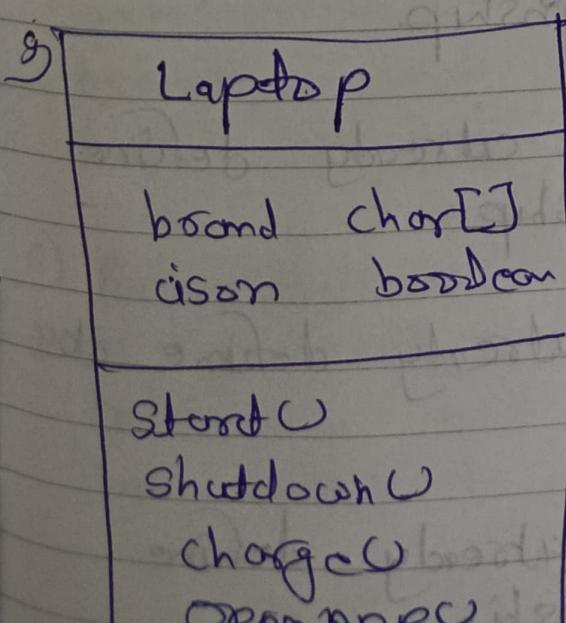
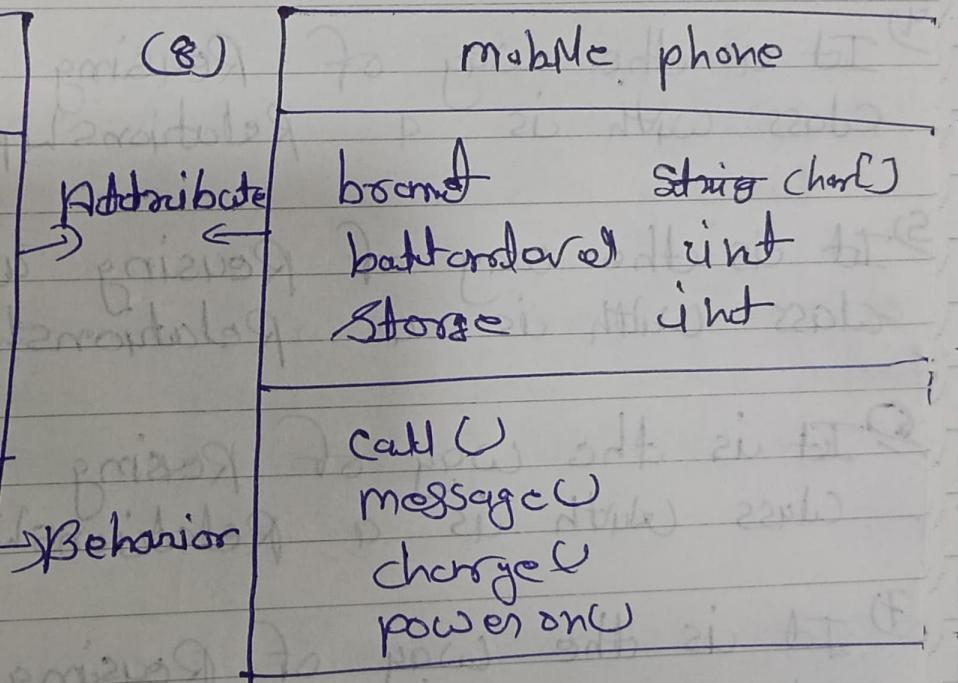
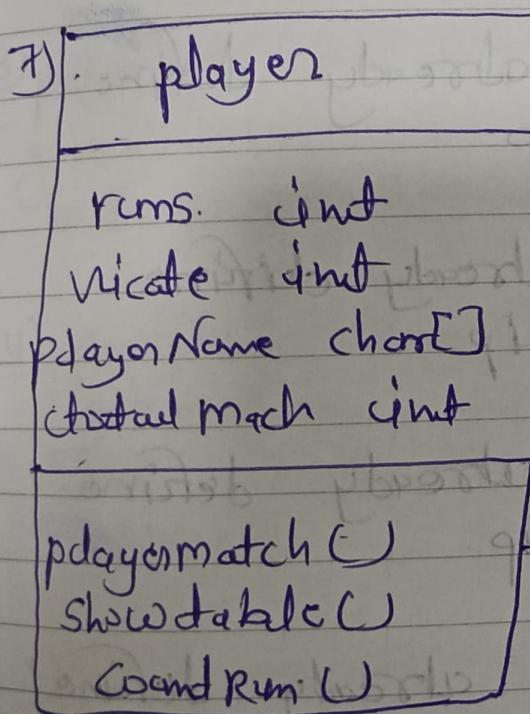
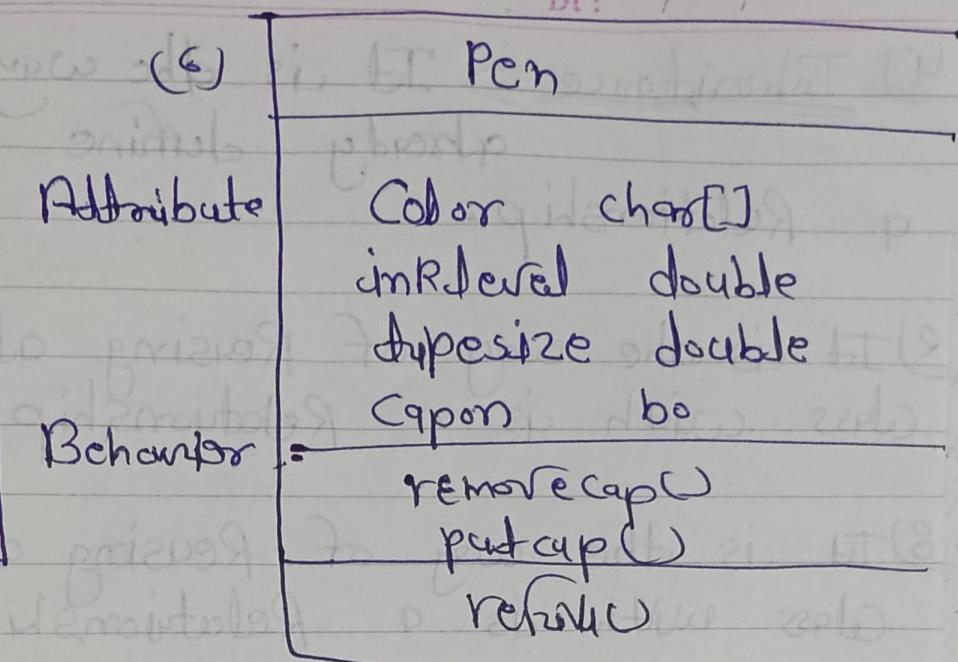
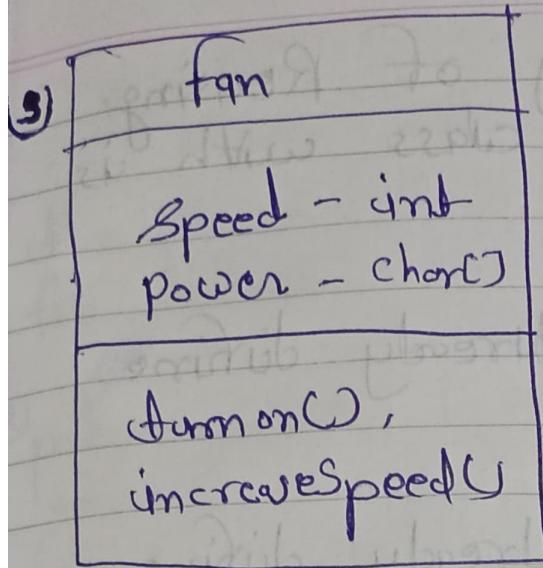
doSharedLoc()

doUpdateLoc()

4)	<u>Shopping cart</u>
	totalAmount - double
	CardId - int
	CustomerName - char[]
	OrderId - int
	doRemoveItem()
	doAddItem()

Attribute

Behavior

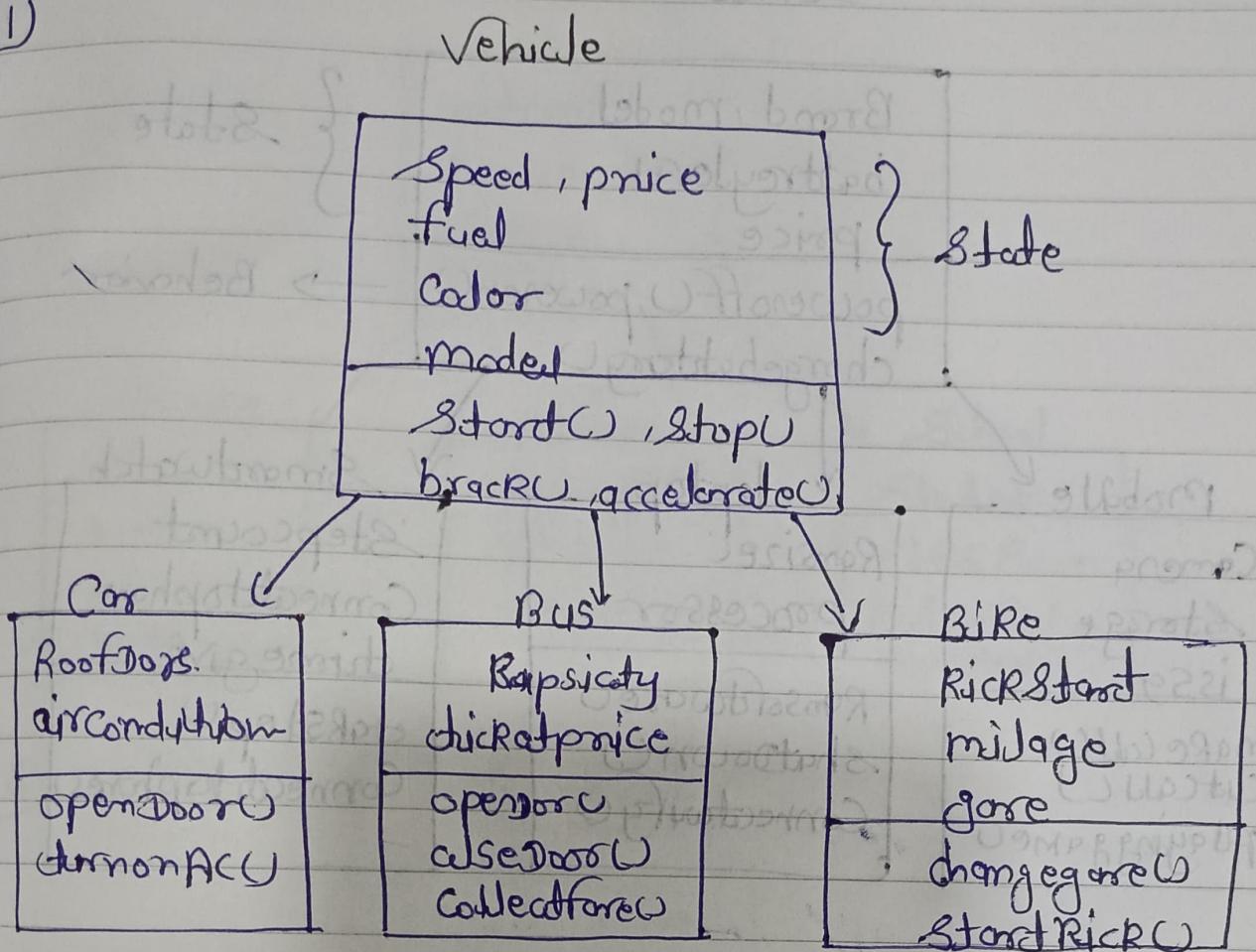


- 4) Inheritance → It is the way of Reusing already define class with is a Relationship.
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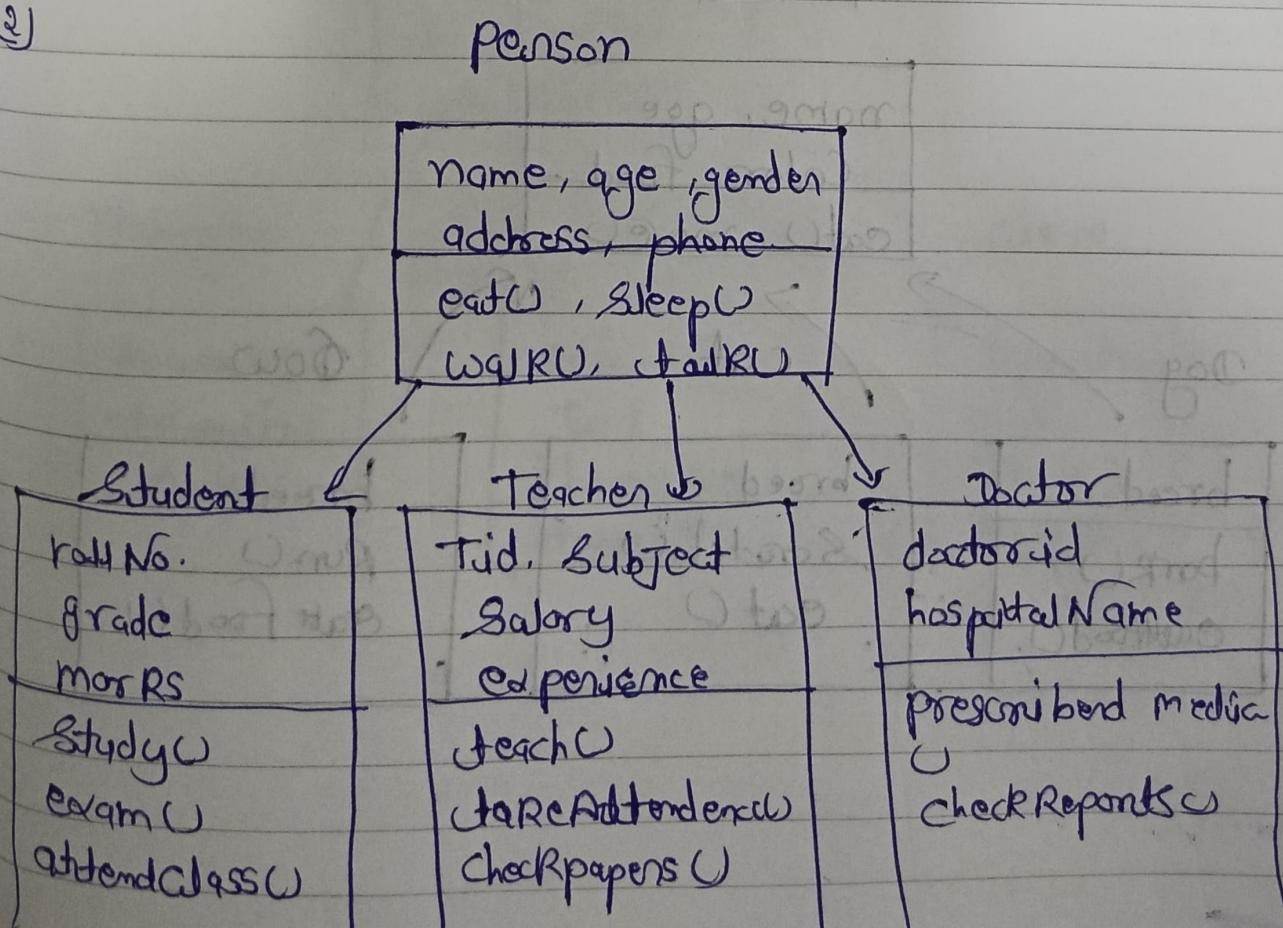
Inheritance example

No. / /
Dt: / /

1)

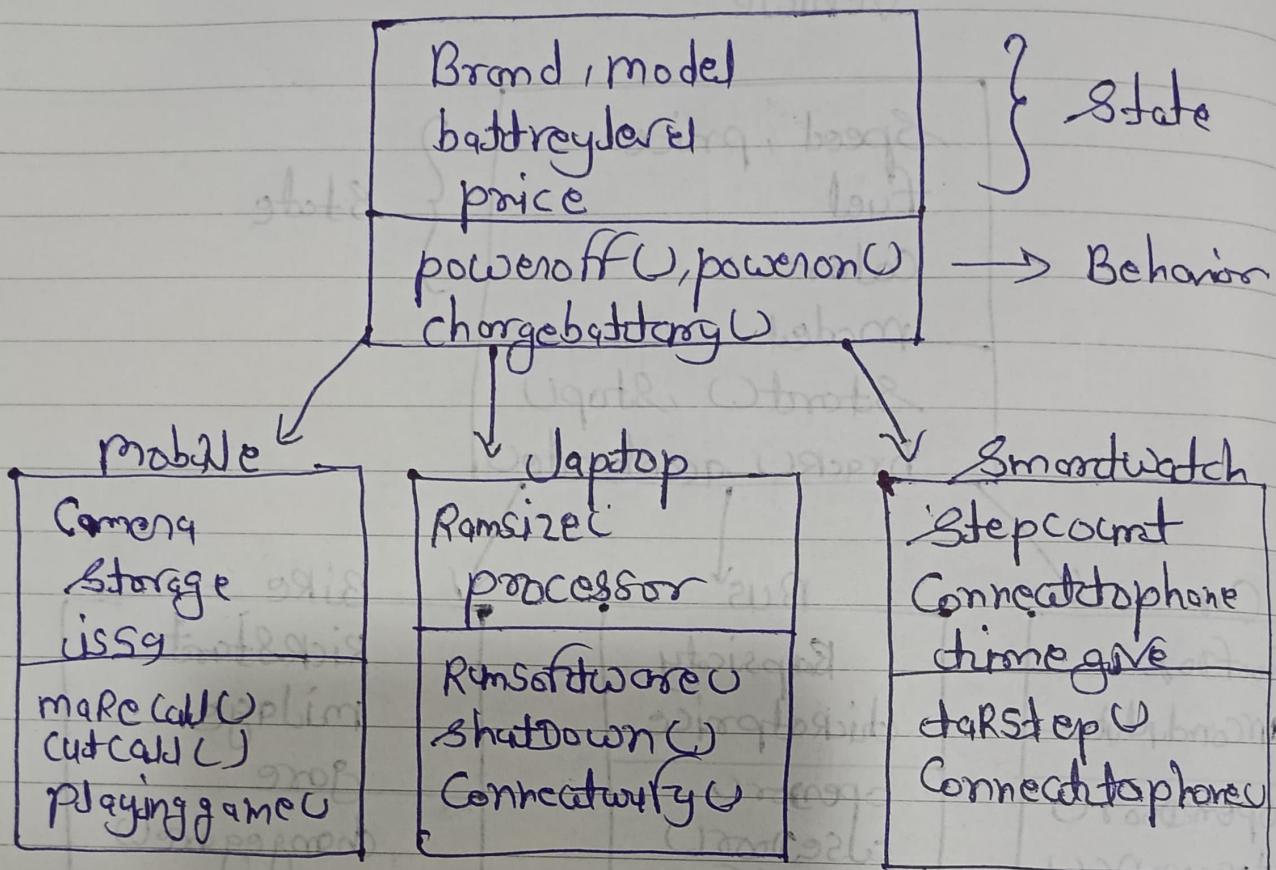


2)



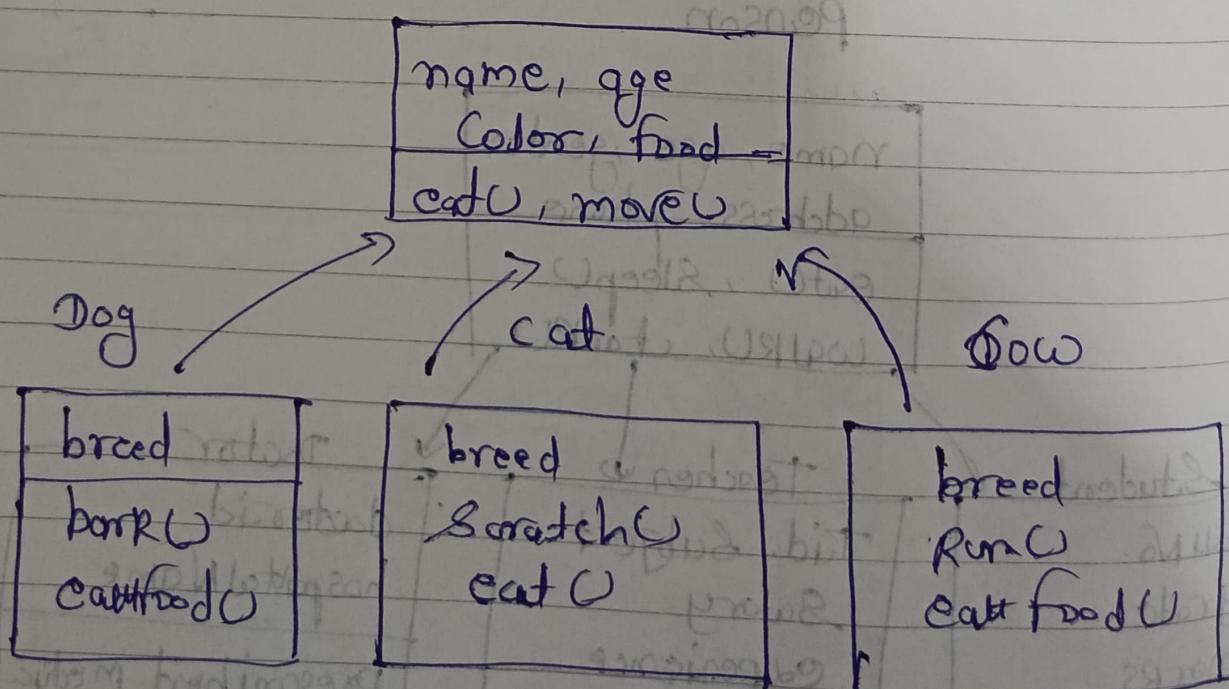
(3)

Device



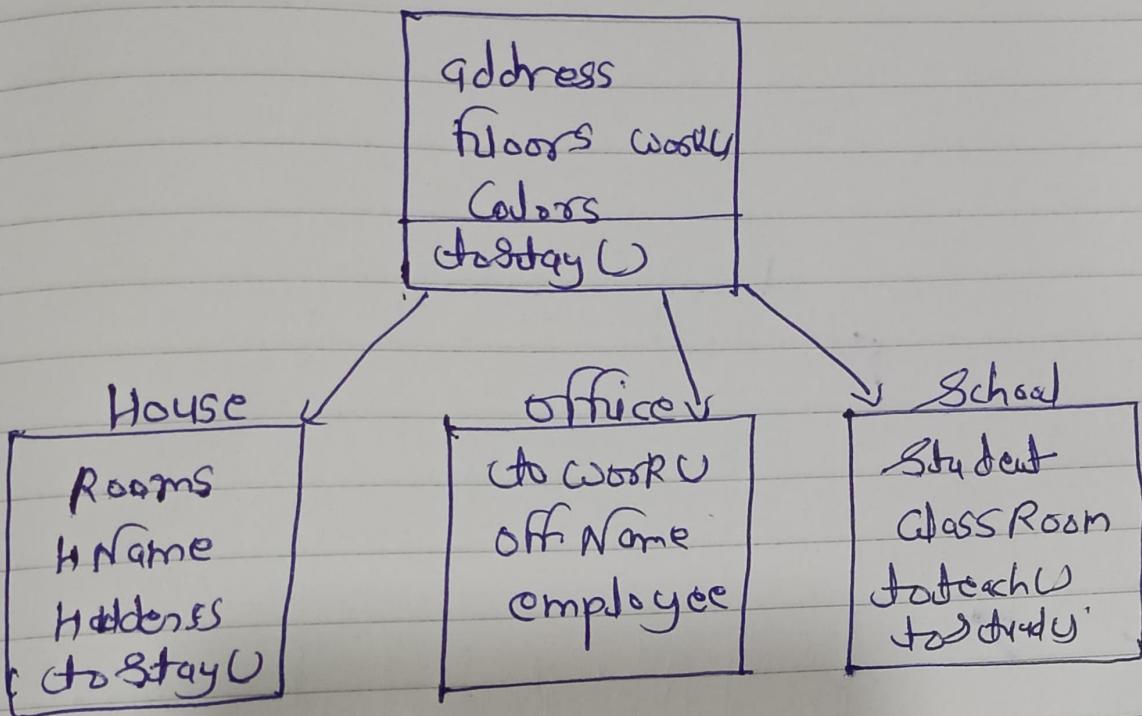
(4)

Animal



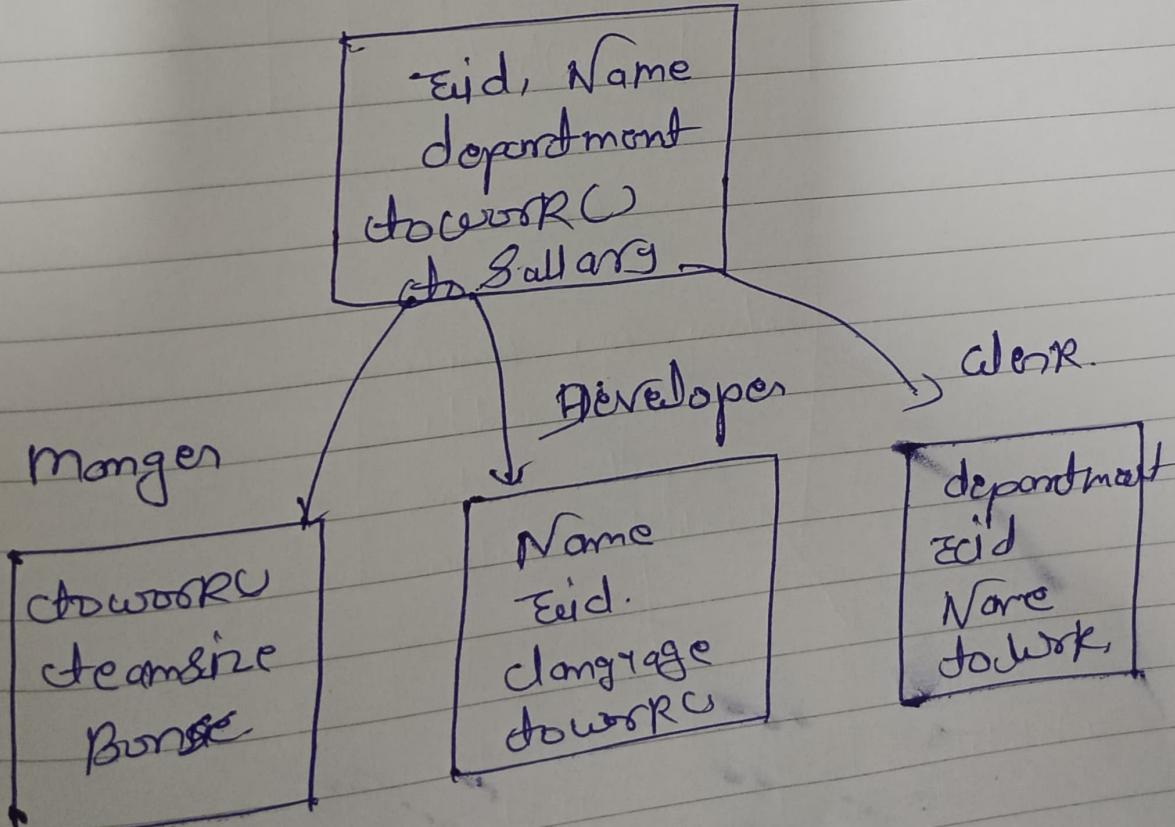
5)

Building



6)

Employee



5) Polymorphism \Rightarrow is same message given to generalized way, showing the same behavior but implemented differently for different objects.

2) polymorphism is a same message given to generalized way, showing the same behavior but implemented differently for different objects.

3) polymorphism is a same message given to generalized way showing the same behavior but implemented diff. for diff. object

4) polymorphism is a same message given to generalized way, showing the same behavior but implemented differently for different objects.

5) Polymorphism is a same message given to generalized way, showing the same behavior but implemented differently for different objects.

6) Polymorphism is a same message given to generalized way, showing the same behavior but implemented differently for different objects.

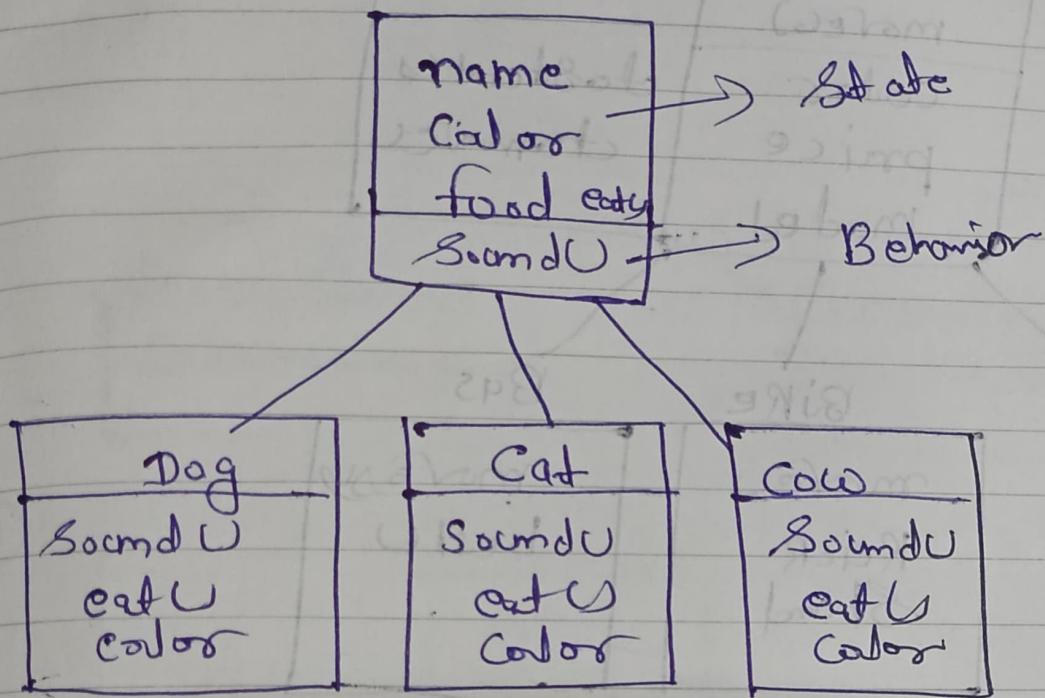
polyorphism \Rightarrow

No Shakesha
Dt: / /

①

Animal \rightarrow

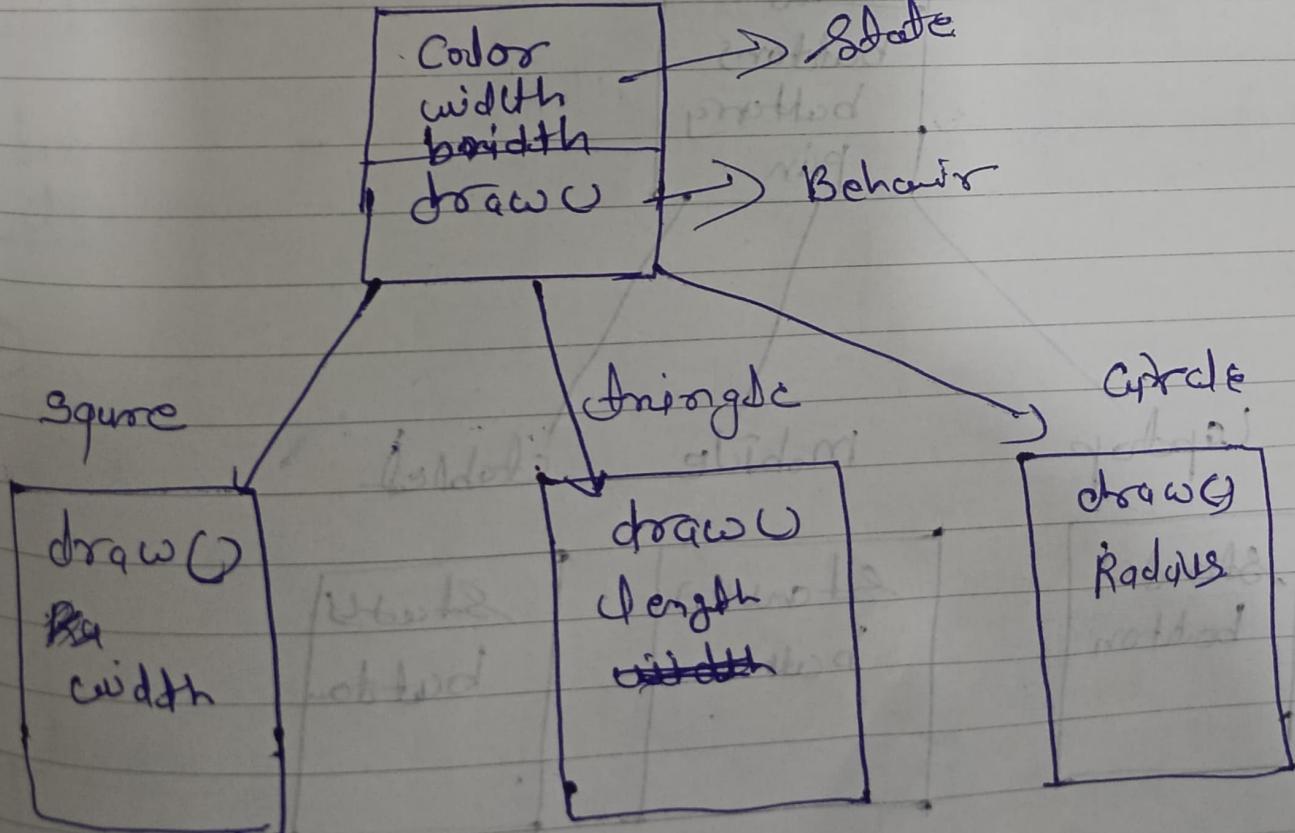
class



②

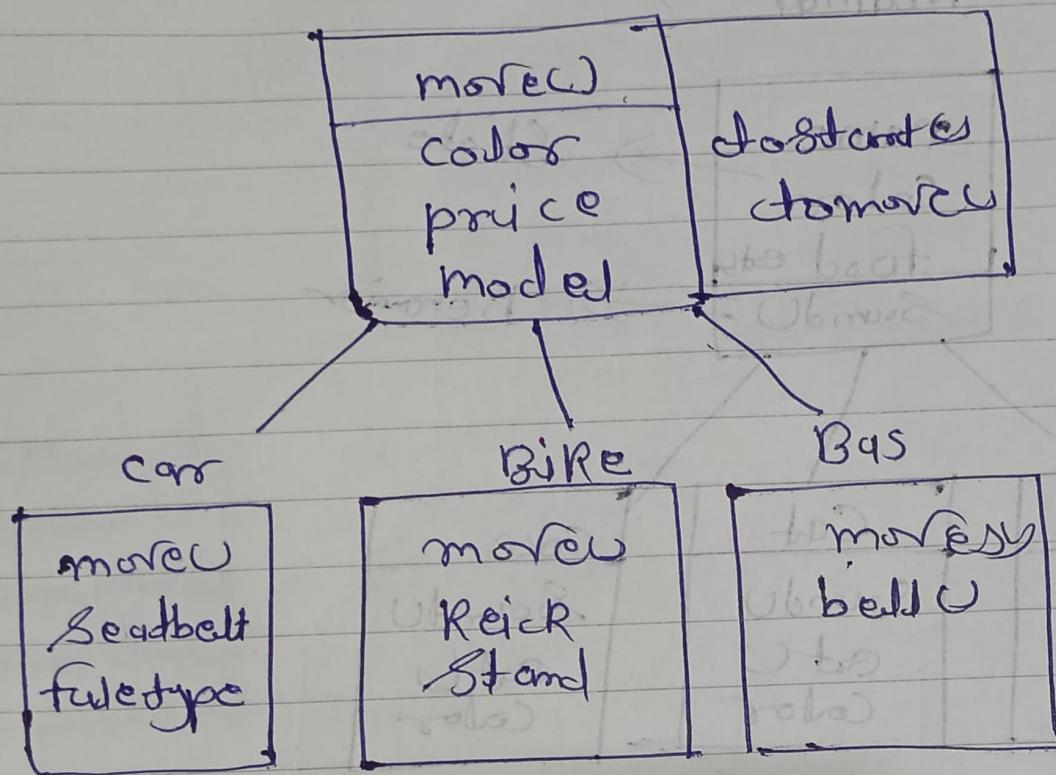
shape \rightarrow

class



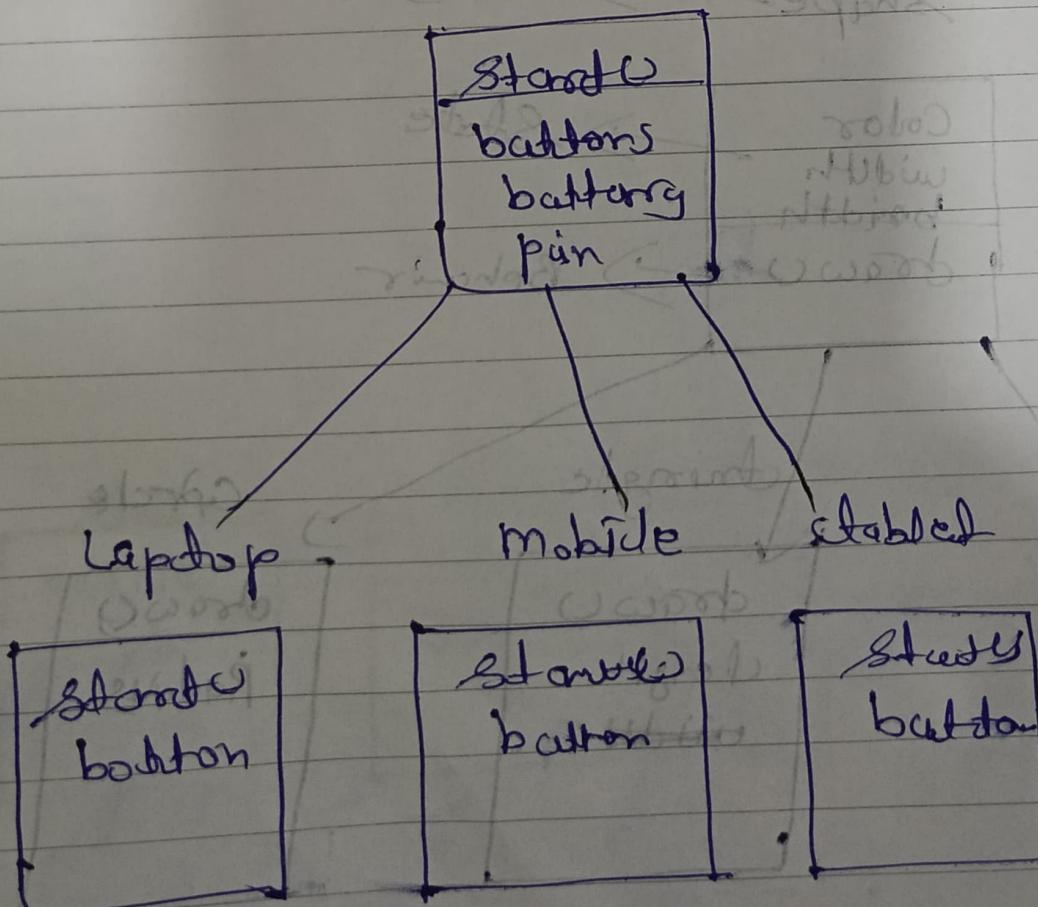
(3)

Vehicle



(4)

Device



Poly.

(6) food

food

name

price

type

taste()

Soft

sour

Behavior

Pizza

Burgers

Sandwich

dashed
Spicydashed
crunchy
cheesy.dashed
soft
light

ambiguity

opposite

agreement

ambiguity

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