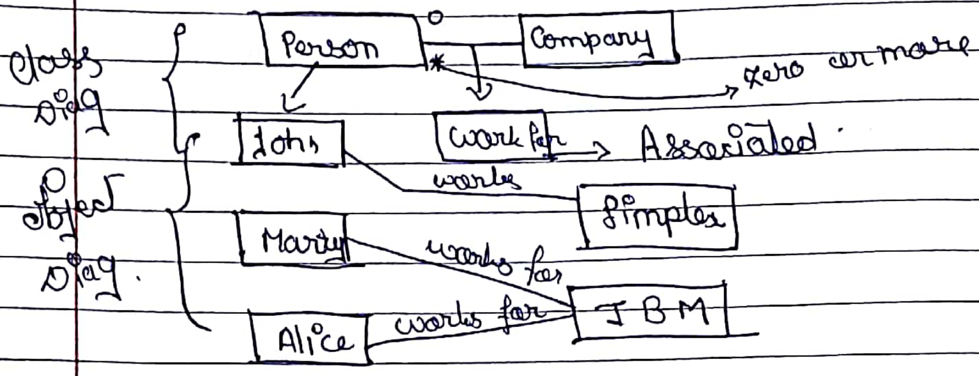
Date

Unit
Relationship between Classes



one to One
One - Many
Many - One
Many - Many

Multiplicity :-

-> Class Rela

It describes how class within a prog interact with each other
These are Imp in Object oriented Design bcoz they help us understand how programme is organised
There are 4 kind of relat^n b/w class

i) Inheritance
ii) Association
iii) Aggregation
iv) Composition

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Classes

→ zero or more

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ented Design
nd how

b/w class

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-> It is most used relaⁿ b/w object
-> It is a group of link with common structer & symmetrics
eg :- A person works for company.

association can be one to one, one to many, many to one & many to many.

-> Multiplicity :-
It specifies the no of instance of one class that may relate too single instance of a associated class.
Multip contains the no of related object

It ~~or~~ Limits the no of object of class that can be involved in a particular relationship at any point of time

Multi it is specify as a coma seperated list of interval each interval is on the form min . . . max, min & max may be integers or any expression that yields an integer result

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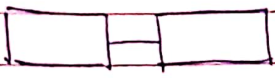
0 . 1 → zero or 1
1 → Exactly 1
0 . * → zero or more
* → zero or more
1 .. * → 1 or more
1 .. 6 → 1 to 6
1 ... 3, 7 ... 10, 15 ... 19 — 1 to 3 or 7 to 10 or 15 to 19

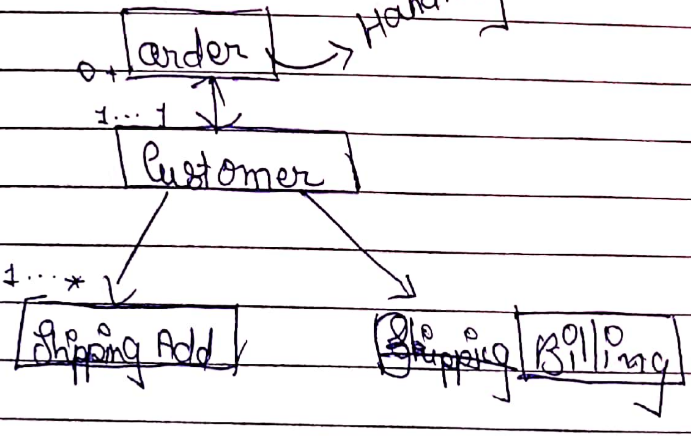
→ Aggregation :- [has a relationship]


uni directional association

manager has employees.

Navigability :-
It indicates that it is possible to navigate from a associating class to target class using associating. Navigavi is indicated by an open arrow which is placed on target class. Default value of navigability property is true.

Navigability



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The associa^n b/w order & customer is navigable in both the dir^n & order must know which customer placed the order & the customer must know which order it has placed

→ When no arrow heads show assoc^n assumed to be navigablable in both the dir^n

→ ass^n b/w customer & address here the custmaer must know its address but add have no knowledge which customer assciated with address

Types of association :-

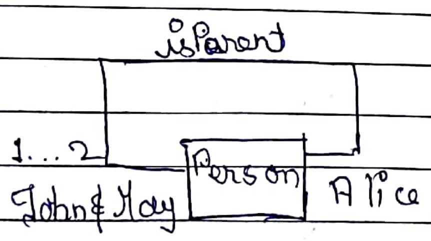
1.] Unary

2.] Binary

3.] Ternary

→ Unary :-

Ass^n b/w two object belonging to same type it is also known as reflexive ass^n or recurrsive ass^n.



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→ Binary :-
Assⁿ b/w two diff type of object or thing
eg:- Person & Company

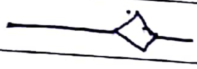
→ Ternary :-

Seller Buyer

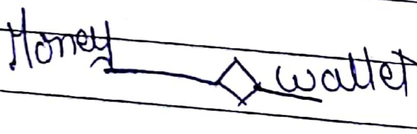
agent

→ Aggregation :-

Directional assⁿ b/w object is known as aggregⁿ. it is unidirectional one way relatⁿ b/w class also called has a relationship.
when an object has another object direction b/w them specify which object contains the other object

Sign =>  hollow ~~Ewall~~

wallet has Money.



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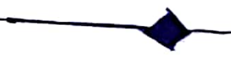
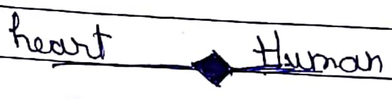
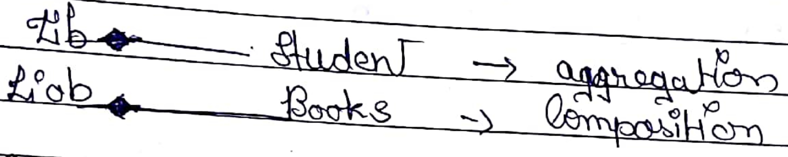
→ Composition :-
Restricted aggregation is called Composition
→ When an object contains another object & if the contained object can not exist without the existance of Container object
it is represented ~~Colorf~~ filled diamond.



It is also called ~~be~~ Whole / Part relationship.

eg :- Human & heart





Properties of Aggⁿ :-
1.] Transitivity
2.] Anti Sym
3.] Propagation.

1.] → if A is a part of B.
→ B is a part of C
→ then A is a part of C

2.] → A is a part of B
then B is not part of A

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3] → Kitchen is a part of house
Than house is not a part of kitchen.

→ Propagation :-
Enviornment of part is same as that of assembly.

Types of Aggrⁿ
1] Fixed
2] Variable
3] Recursive

→ Fixed :-
Particular no & types of component or parts are predifined
eg :- Car has Engine, 4 wheels, 1 steering wheel

→ Variable :-
No of levels of aggⁿ is fixed but no's of ~~levels~~ parts may vary
eg :- Train coaches.

→ Recursive :-
object contain components of its own type
eg :- kud ko find karna.

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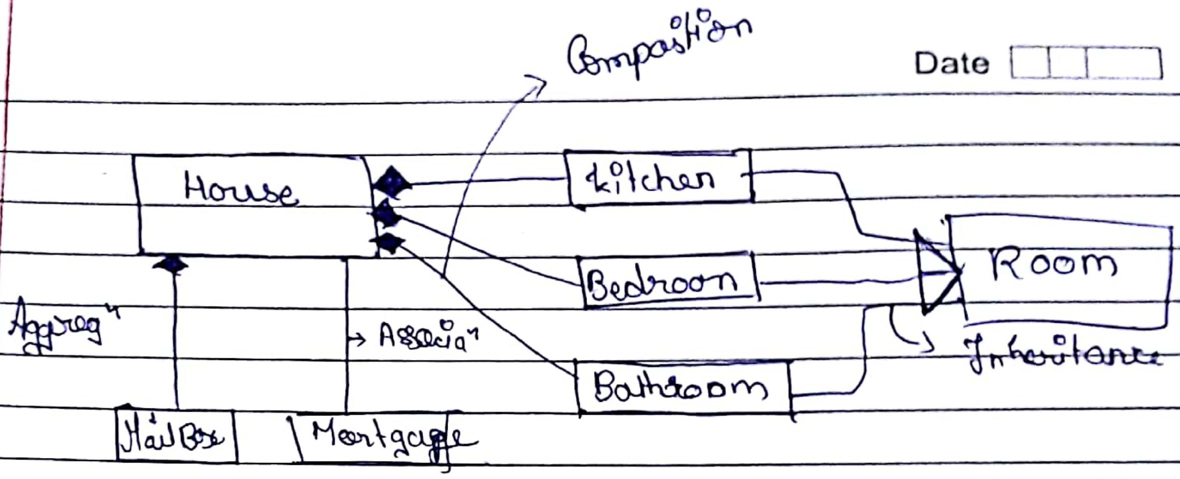
Composition
House
Kitchen
Bedroom
Bathroom
Room
Inheritance
Aggregⁿ
Associaⁿ
Mail Box
Mortgage