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ER Diagram

Entity Relational Diagram

Content :-

1.) ER Diagram Notation & options [ER model]
2.) Identifying TABLES from

Terminology :-

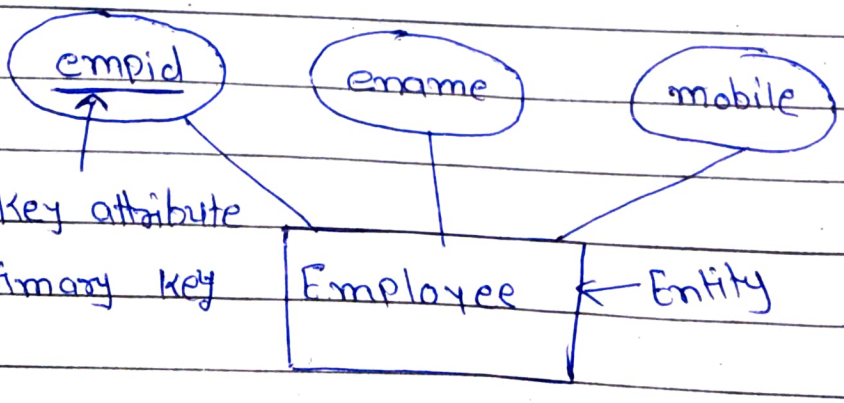
Attribute :- An Entity is described using a set of attributes.

ex: empid, ename, gender → attributes describes the employee.

Entity :- it is a Real world object which has both attributes and behavior.

Entity set :- An Enitity set is a collection of similar entities...

ex: {prakash, navatha, Pranavi} → Entity set.



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Super Key :- Candidate key + anything is called Super key

Candidate ⟶ Super key

Relation ship :- ◇

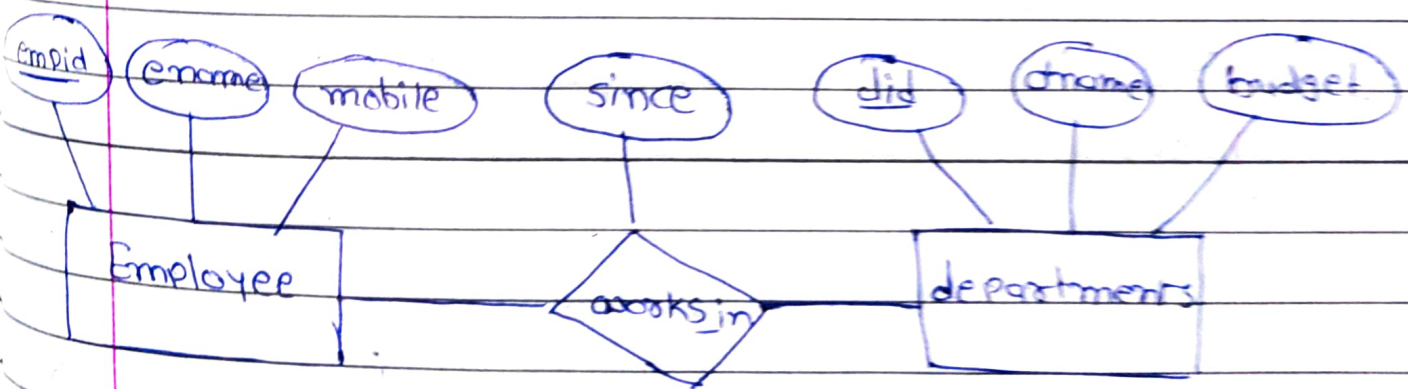
A Relationship is an association among 2 / more entities.

Ex: Prakash works_in IT dept.

Relation ship set :- it is a collection of similar relationship.

Descriptive Attribute :- A Relationship can have descriptive attributes.

Ex: since of works_in is a descriptive attribute.



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No Constraint :- (simple line ——)

Business Rule :- An employee can work in many department.

1.) ⟶ Can emp. exists without working in any dept?
Yes

2.) ⟶ Can an emp. exists working in one dept?
Yes

3.) ⟶ Can an emp exists working in two dept?
Yes.

4.) ⟶ min and max no of emp can work.
0 & no. of department

Key constraint :- (Arrow line ⟶)

Business Rule :- An employee can work in at most one department.

1.) Yes
2.) Yes
3.) no
4.) 0 & 1

Participation constrain :- (Bold line ——)

Rule :- Every employee must work for a dept.

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1.) NO
2.) Yes
3.) Yes
4.) 1 & n.

Participation & key constraint :- (⟶)

Rule :- Every employee for a department and at most one dept.

1.) NO , (2) Yes (3) NO (4) 1, 1

Constrain	max	min	Symbol
Participation &	1	1	⟶
key / no ⟶	n	0	—
key	1	0	⟶
Participation	n	1	═

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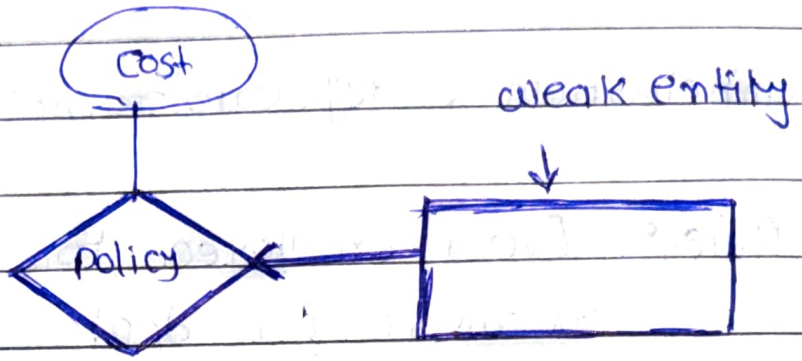
weak entity :-

An Entity without key attribute is called weak Entity.



Identifying Relation ship set

↳ whenever there are weak entity we are using it.

↳ normally blw normal entity and weak entity.

Class Hierarchies :-

→ classification of entities in an entity set into subclass.

overlap Constraints :-

Can an entity belongs to 2(or) more subclass?

1.) can prakash entity be both an Hourly & Contract ? no/

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2) Can Prakash entity be both an Contract Emp. entity and ~~Hourly~~ Senior Entity?

→ yes.

Hourly Emp ∩ Contract Emp = {ϕ} (Hourly emp doesn't overlaps Contract emp)

Contract Emp ∩ Senior Emp != {ϕ} (not overlaps.)

Covering Constrain :-

Hourly_Emp ∪ Contract_Emp := EMP (Hourly & contrat cover Emp)

Hourly_Emp ∪ Senior_Emp != Emp (not cover)

Aggregation :-

↳ it allows us to indicate that relation b/w entity and Relation

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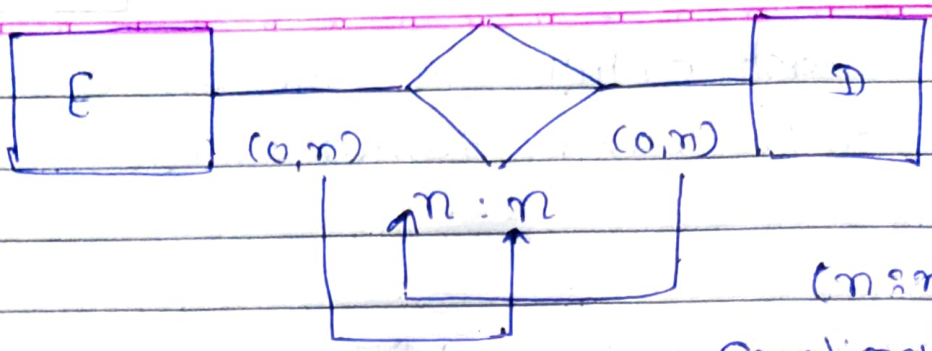
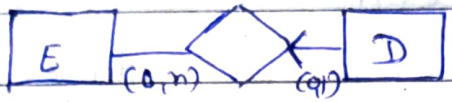
Ex:-



(n:n)
Cardinality.

Ex:-



(1:n)

Cardinality :- "it is a max no of instance can entity can Participate in the Relation -ship set."

Ex:- n:n , 1:n , n:1 , 1:1

Total Table 2[emp,dept]
3[emp, Dept, works-in]

1.) Every Attribute of the entity will become the column
2.) every entity in E-R diagram will become a Table.
3.) The Relationship with no constraints will become a Table
4.) The Relationship set with constraints may or not become table
5.) we have to be careful in identifying constrain

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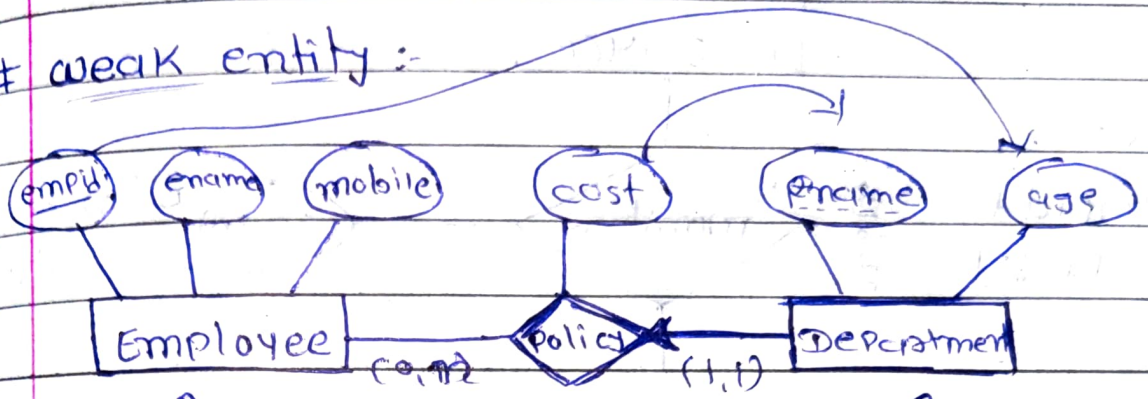
6.) Relationship set is not a table then descriptive attributes of the relationship will move of the Entities involved in the relation

weak entity :-



3 col

PK → empid

FK → X

4 col

PK ⇒ pname + empid

FK → empid

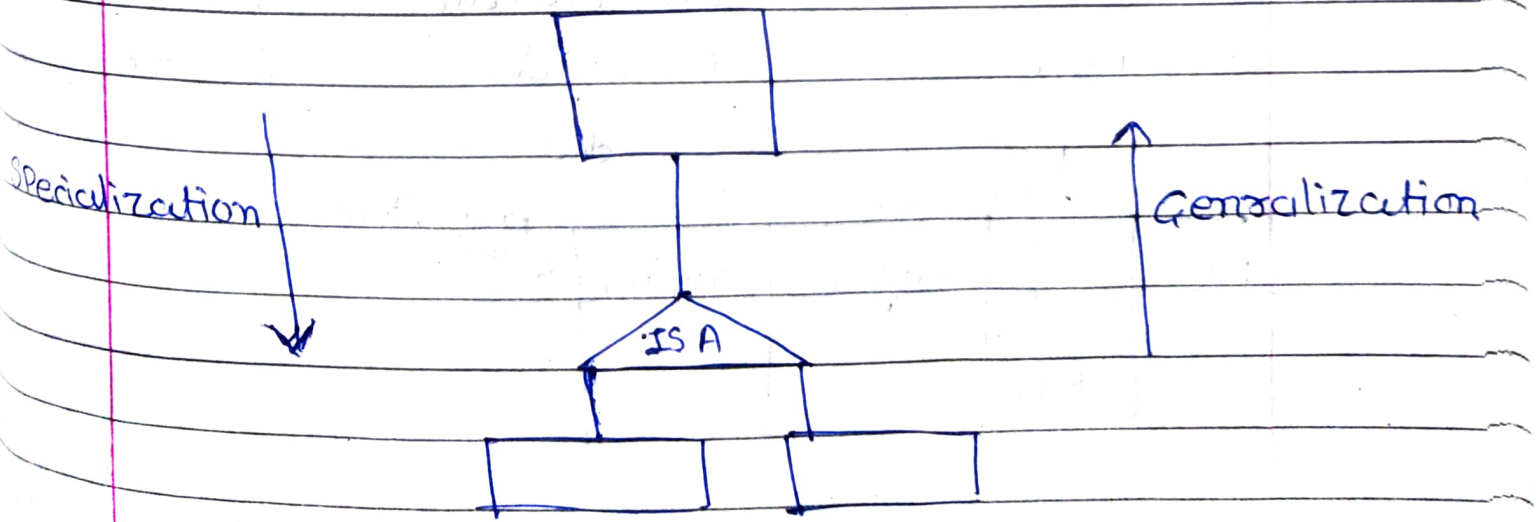
(Partial + Foreign key)

EMP

id	name	mobile
1	Prakash	9[illegible]2-[illegible]
2	navatha	9309786

Dep

Pname	age	id	cost
Pranavi	3	1	30000
Pranavi	3	1	35000



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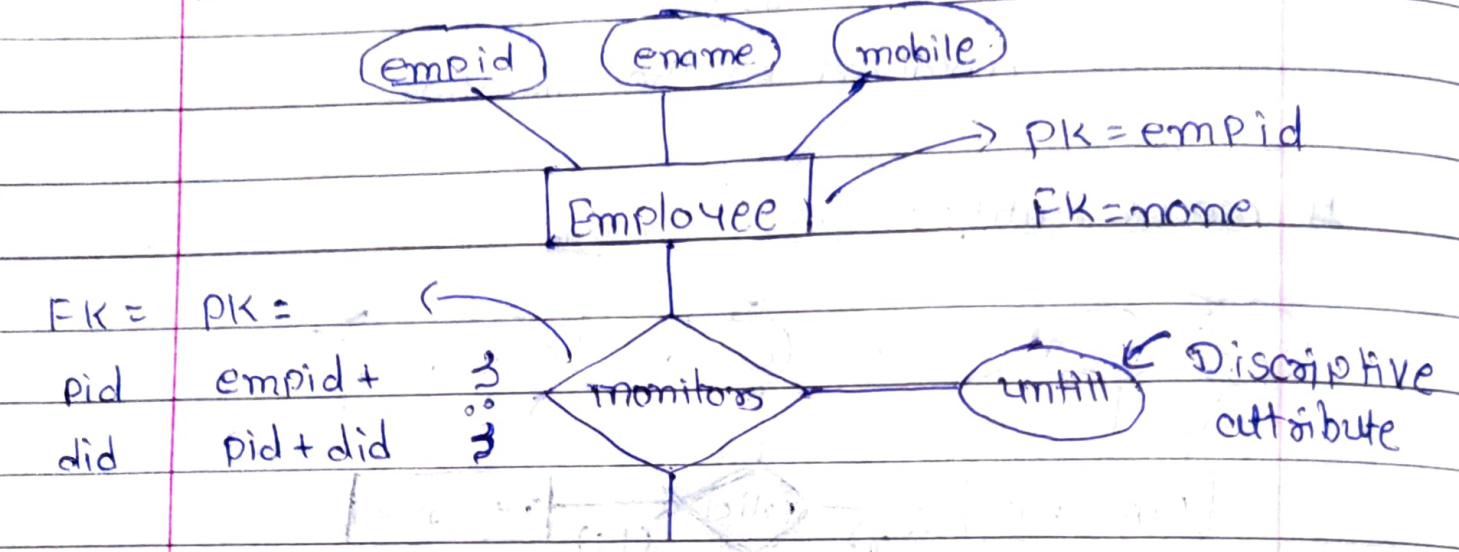
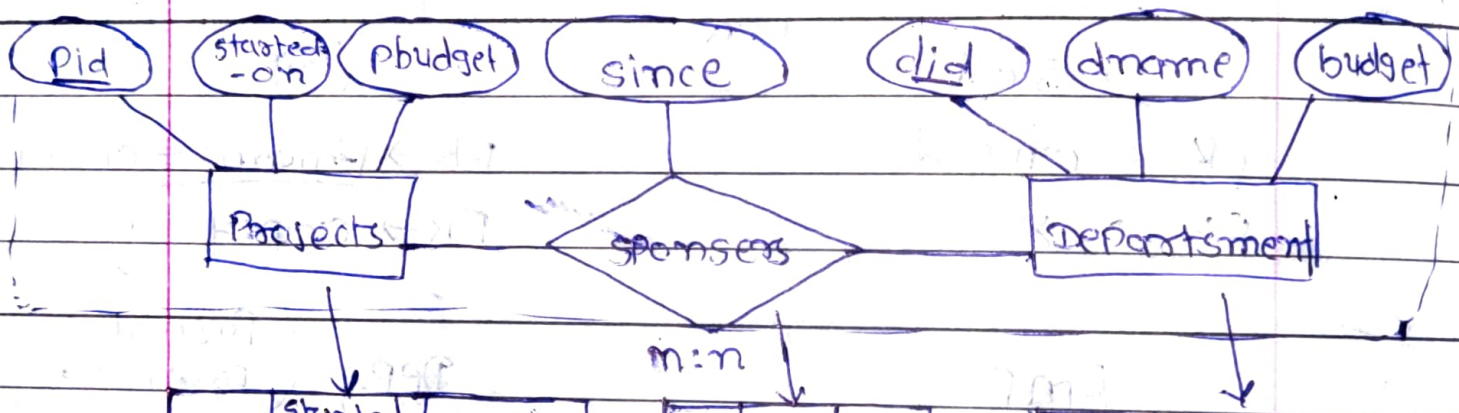
Translating ER Diagram with Aggregation





pid	started-on	pbudget

PK = pid
FK = none

pid	did	since

PK = pid + did
FK = pid
did

did	dname	budget

PK = did
FK = none

PK

pid	did	empid	until
	FK		

monitors

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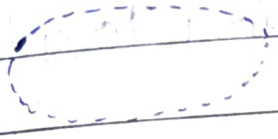
dominant entity : strong entity
subordinat entity : weak entity

 → multi valued attribute.

 → Derived attribute.