

## Lecture 6

relational Model - 3 phase.

- Inside this we have relations, of tables, = table
- With rows and columns.

We need to convert ER to relational Model.

- Conceptual Model to Logical Model  
(ER) → (Relational model)

Relation Const.

- Relation Schema (table name + Attribute / column)
  - Relation instance (table - tuples - record)
  - Domain - data type
- Relation = table**

Relation Schema has,

- name of the relation = table
- Attributes, (tuples / rows) - actual data,

Relation instance

called as Tuples, (data / records)

Domain

- represent the data type

nam : string , ssn : string

Schema Name

Students (

field name      S.id : string,  
                   name : string,      Domain  
                   age : integer  
                   gpa : real) to constraint and all field string  
                   domain bad error that is

degree = 4

Degree of a relation

- no of attributes are equal to degree of relation.

ID, Name, age, Phone,

↑

degree = 4.

- you can't have same name for multiple relations
- attribute should not be multip Valued or Composite

formalizing key = field

Pk - Minimal set that identify row.

Fk - that serve reference to another table.

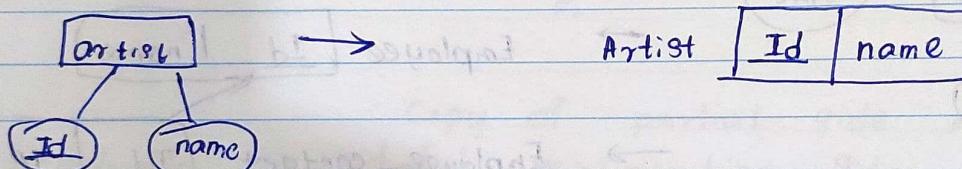
referencing Enrolled ( c\_id, grade, sstudid )  
 ↓  
 referenced Students ( s\_id, name, login, age, gpa )  
 ↓  
 PK      FK

studid, s\_id → Should be same domain (data type)

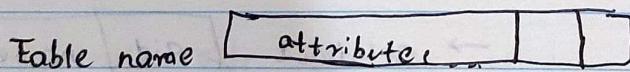
ER to relational Model.

ER

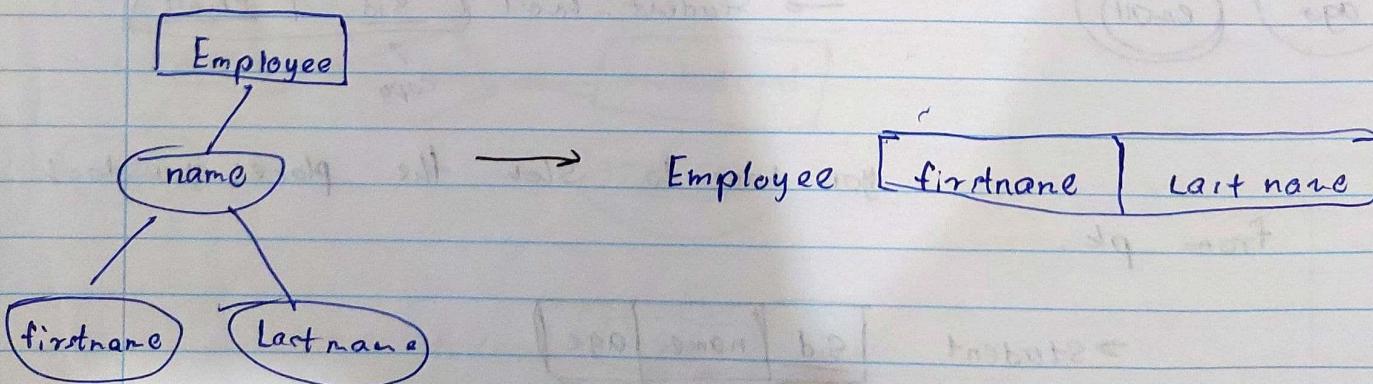
relational model

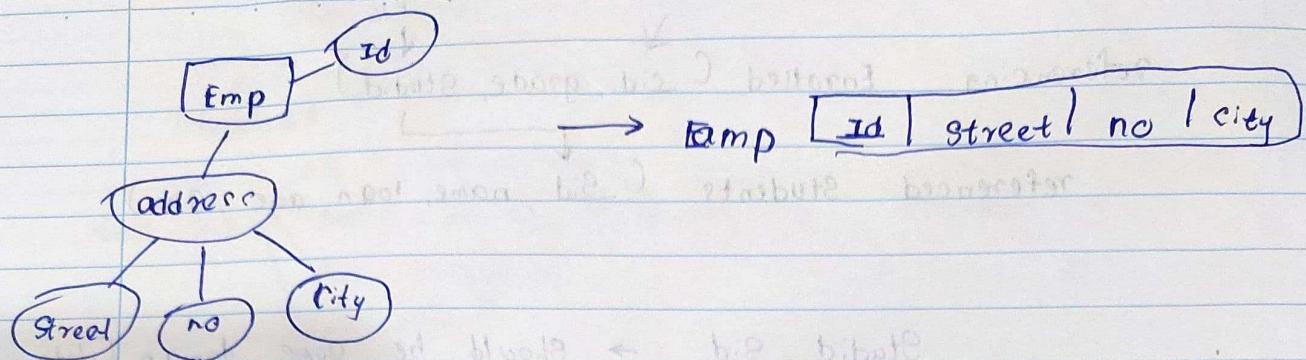


relational model

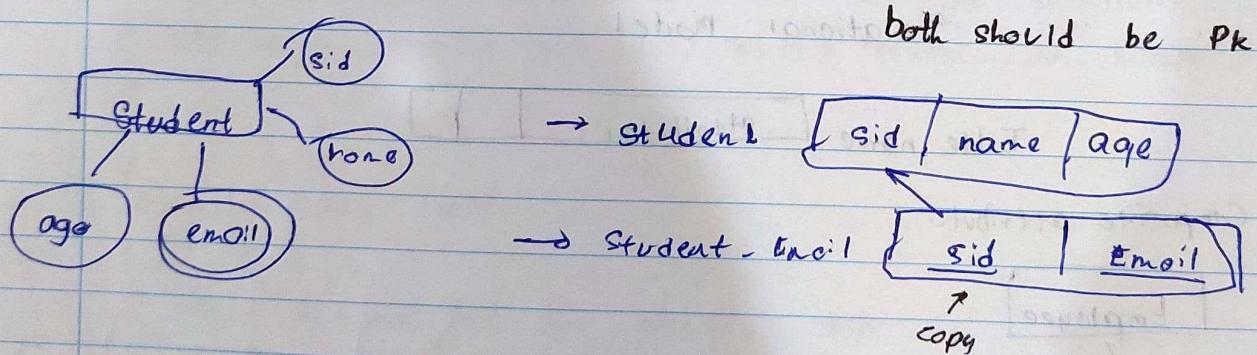
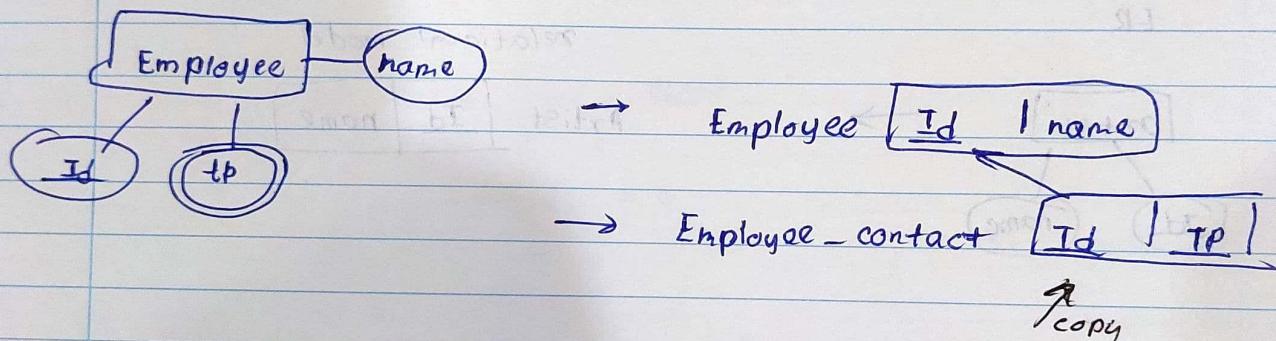


Composite attribute

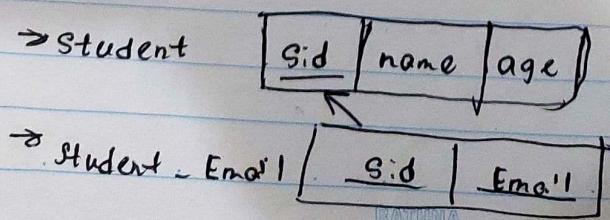




Multivalue attribute - Should be removed from main table and create special table

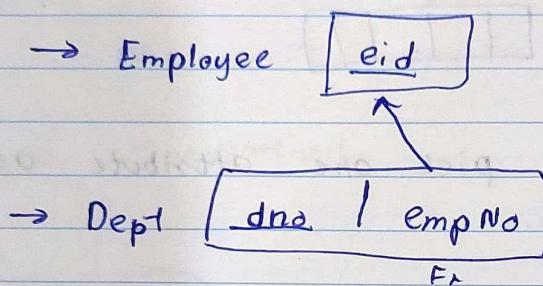
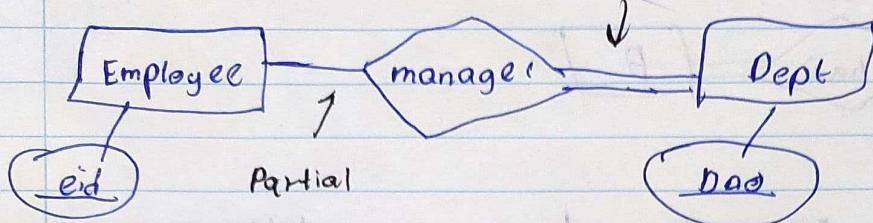


You have to slow the place you took  
from pk.



8 partial

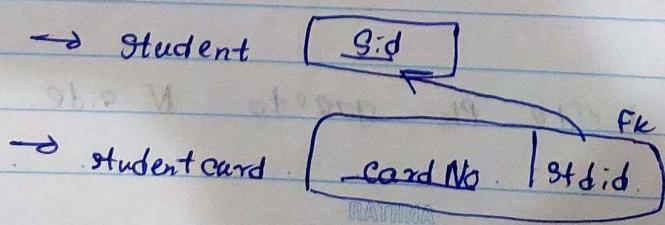
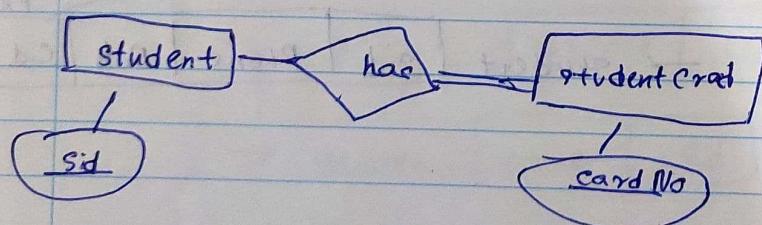
Total participation to relational Model  
(1:1)



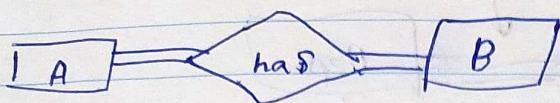
Copy of partial side pk should be included in total participating side.

empNo → doesn't need to be the same name. can be anything unique.

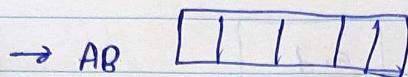
→ Partial side pk add it to total side (summary)



1:1 total participation on both side



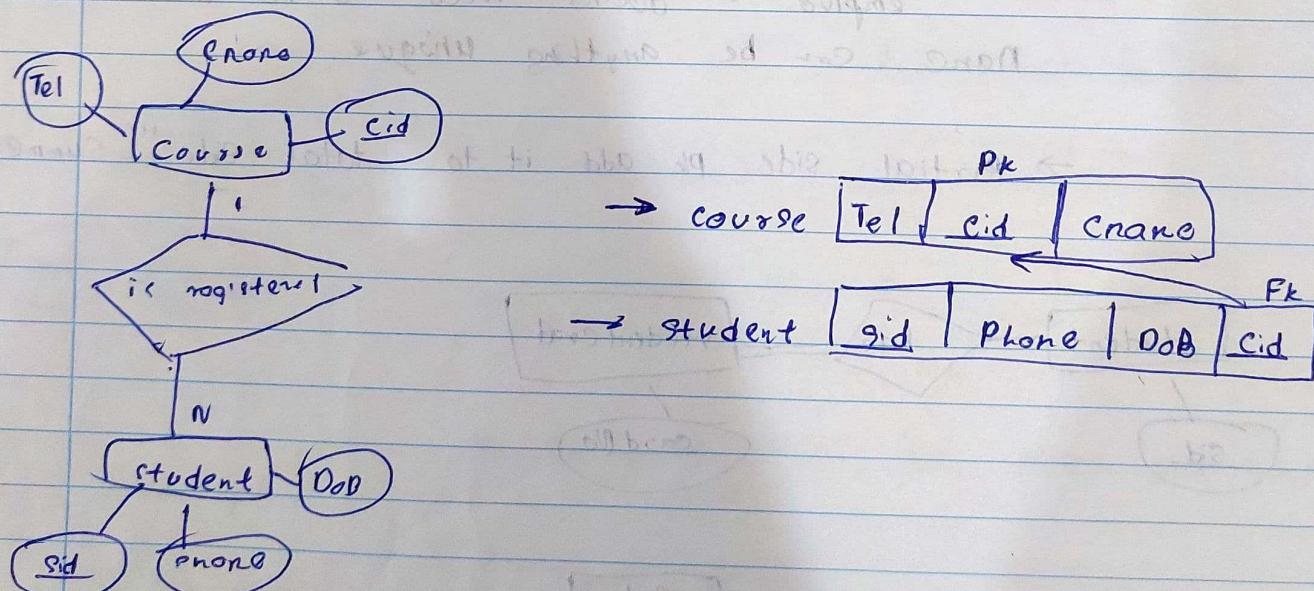
Merge them to a one table.



Pick one attribute as a PK.

1:N conversation.

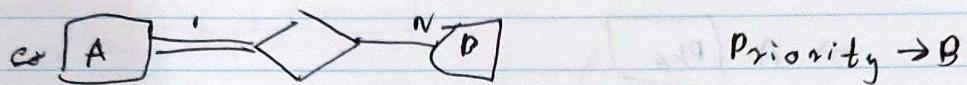
1 side PK goes to the many side as a fk. and show the copy arrow



1 side PK goes to N side.

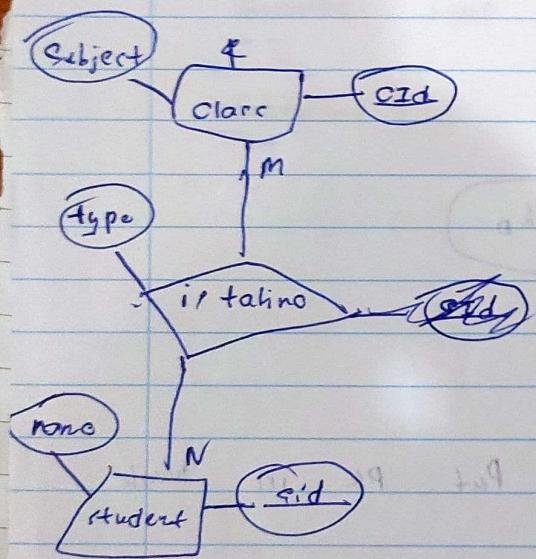
if 1 : N and total participation in one side.

Just ignore it the participation and give priority to N side.



Priority  $\rightarrow$  B

M : N Conversion.



Create a new table using only Pk's of both table

That table name should be the relation name

if other descriptive attr take it too

$\rightarrow$  class      

Subject		cid
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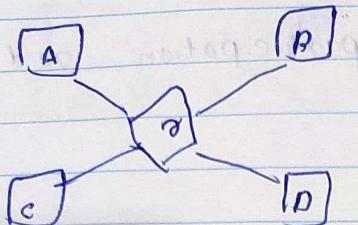
$\rightarrow$  student      

name		sid
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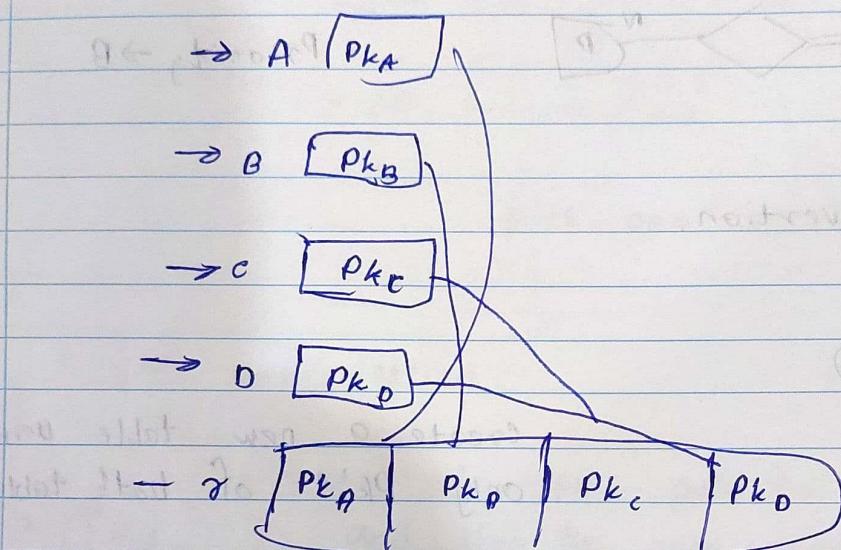
New table  $\rightarrow$  is taking      

cid		sid		type
-----	--	-----	--	------

Many Entity.

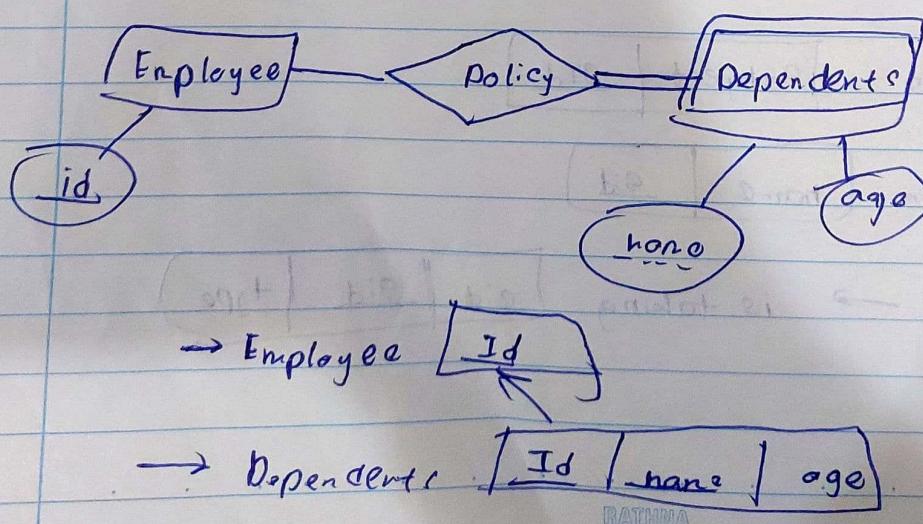


separately note down all entities separately and new table will have Pk's

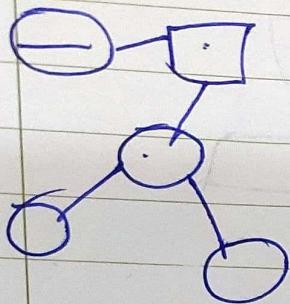


Mappings Weak Entity

Some are 1 : M Put Pk in Weak Entity side (N)

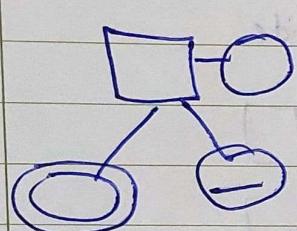


Composit.



student [ID | f-name | l-name]

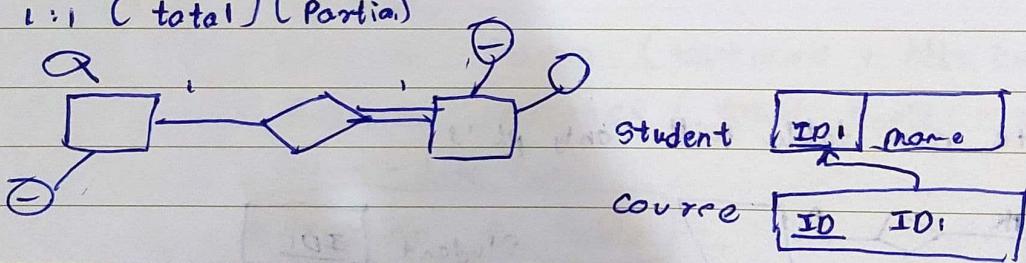
Multivalue



student [ID | name]

tp-no [ID | tp]

1:1 (total) (Partial)



student [ID | name]

course [ID | ID]

1:1 (total)

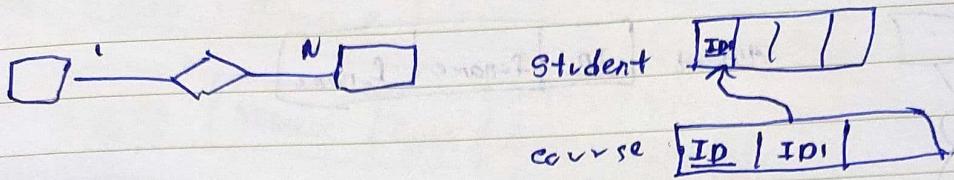


→ make one table with 1 PK

Student-course [ID | name | type]

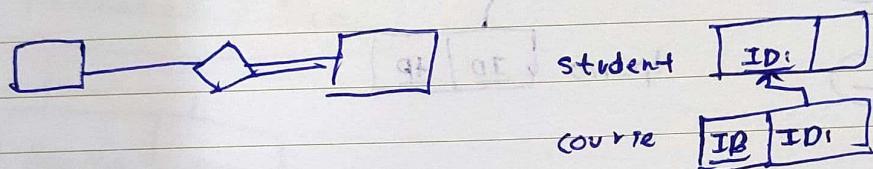
1:N

1 side pk to N



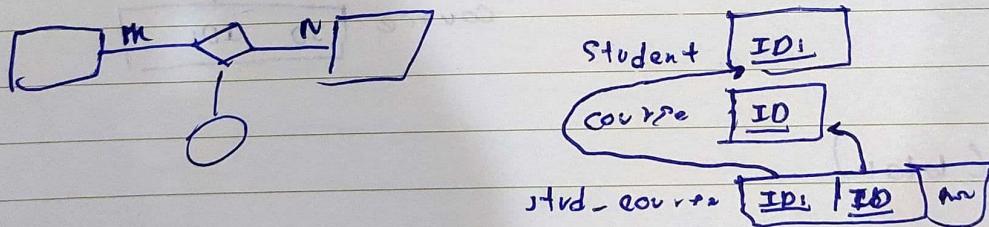
1:N (total) (partial)

- ignore total / partial give priority N side.



M:N

- Create new table with only pk's



Weak Entity

Pk in weak side

