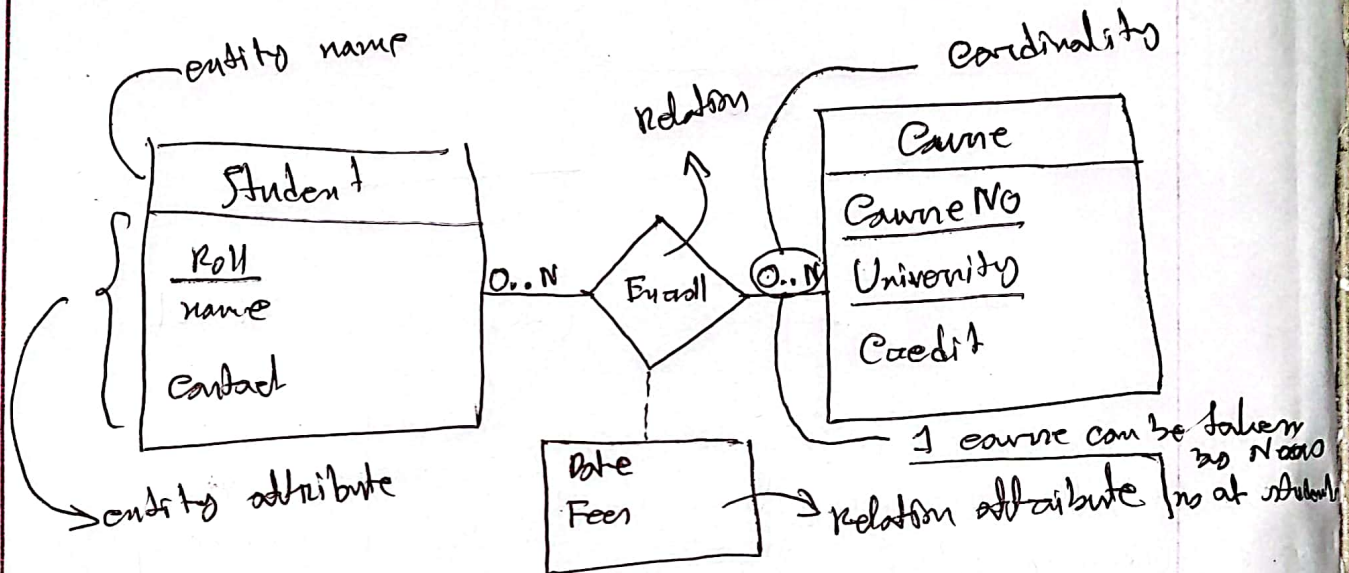


### 10-3 CERD Primary key and Relation Between tables)



In an entity diagram primary key is denoted using underline

Relation 3 types:

1. one to one

2. one to many



3. many to many



one to one: if there is 2 tables a, b. & 1 row is related with only 1 row of b, then it is one to one relation. Student, Result

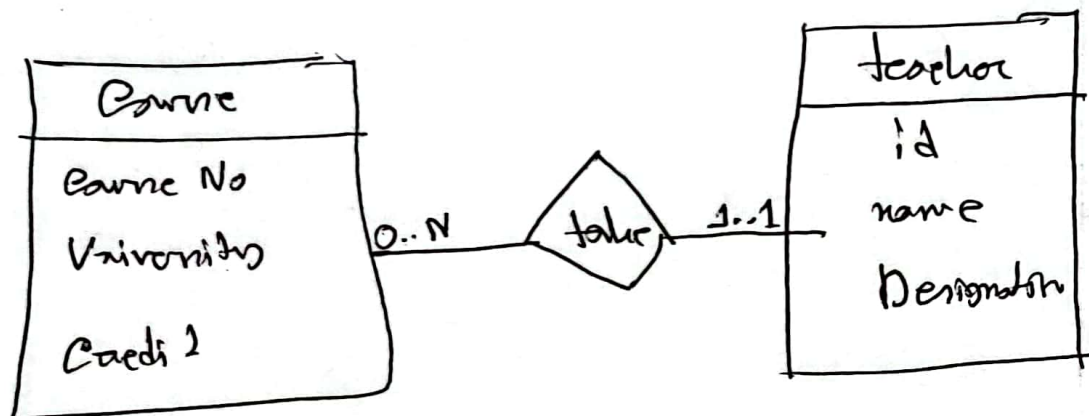
\* One to many: If a table's 1 row is related to B table's multiple row then it demonstrates 1 to many relation.  
e.g. student advisor

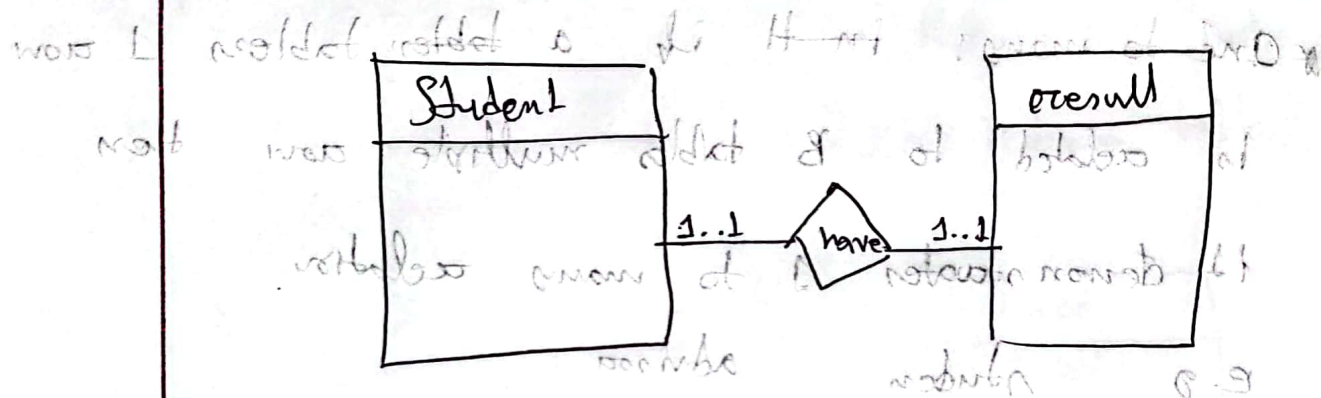
1 advisor can have many students but 1 student can have only one advisor

\* Many to many:

One table's 1 row can be related to another table's multiple row. and vice versa

1 student can enroll into many courses  
1 course can be taken by many students



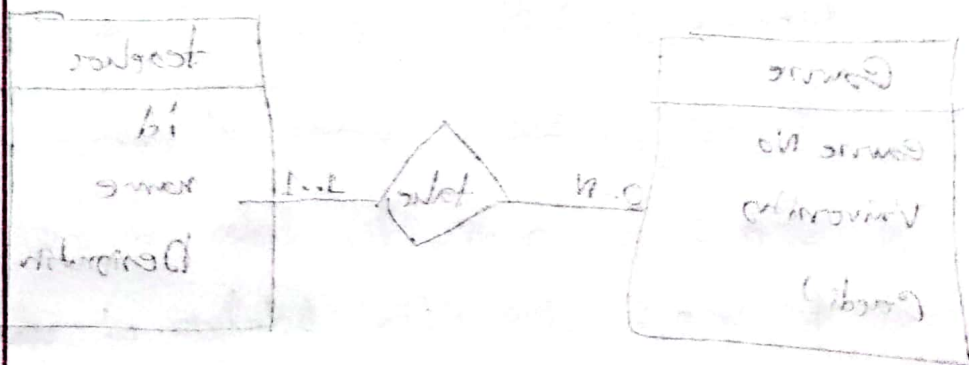


A student can have many results and a result belongs to one student.

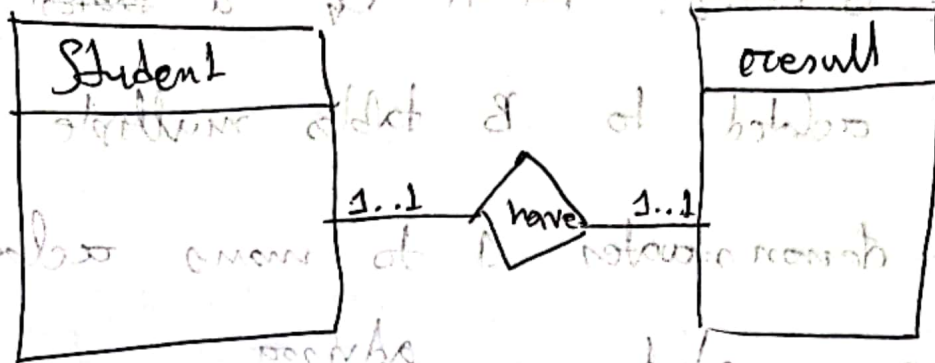
Relationship of many to one

The result table can be added to another table multiple times and vice versa.

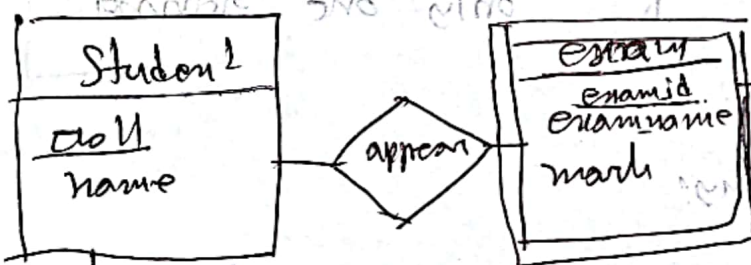
A student can enroll into many courses  
A course can be taken by many students







## 10-9 ERP strong and weak entity



→ exam table has no dedicated primary key but we assumed exam-id as primary key so it is weak entity

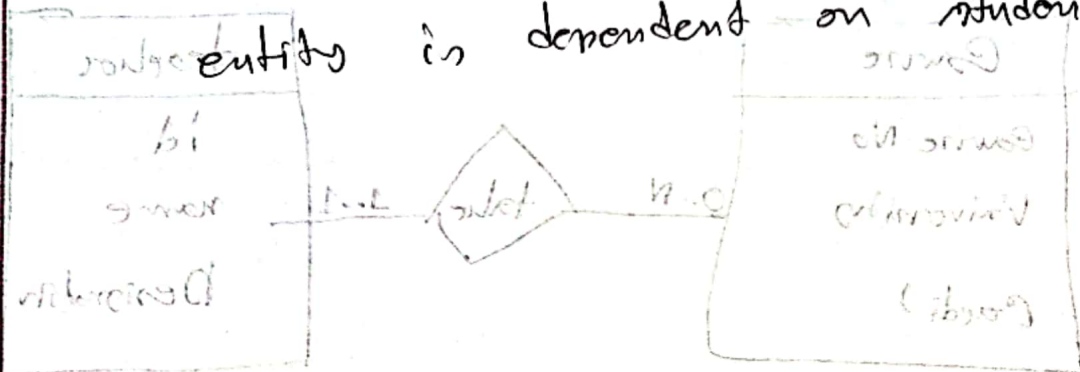
→ student table has dedicated primary key so it is strong entity. Strong entity is independent

Independent

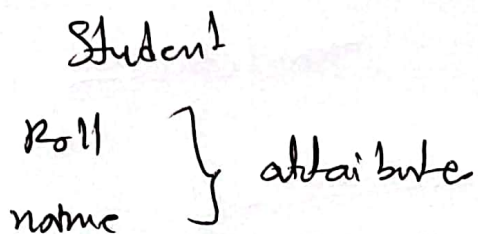
But weak entity is dependent

e.g - student table is independent but exam

entity is dependent on student table

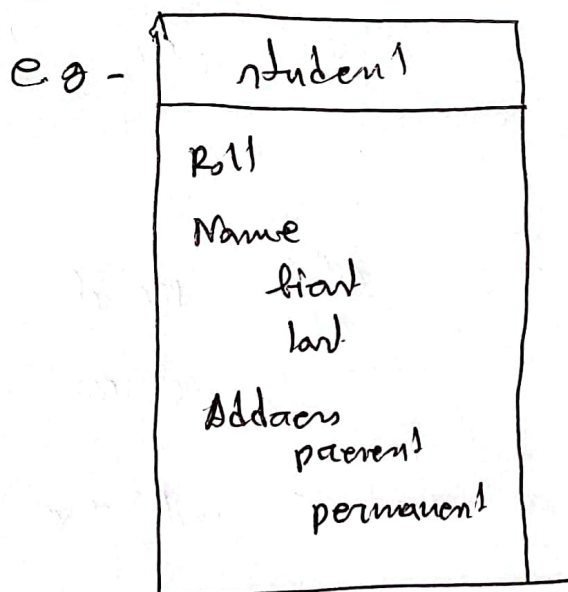


## 10-5 ERD types of attributes

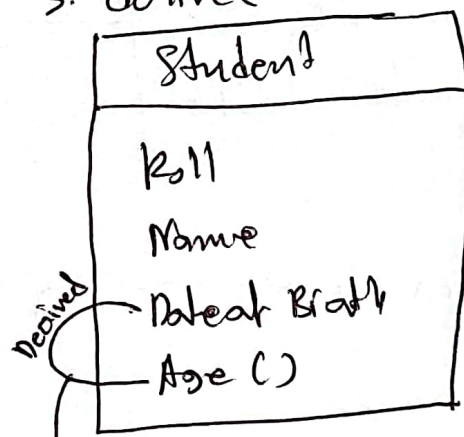


\* attributes are 3 types.

1. comparison:

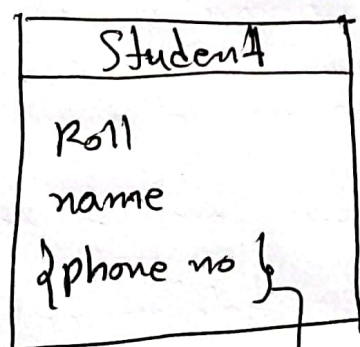


3. derived



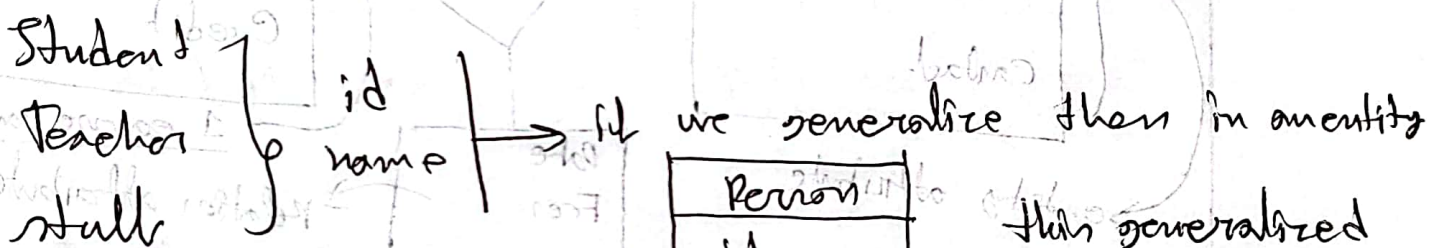
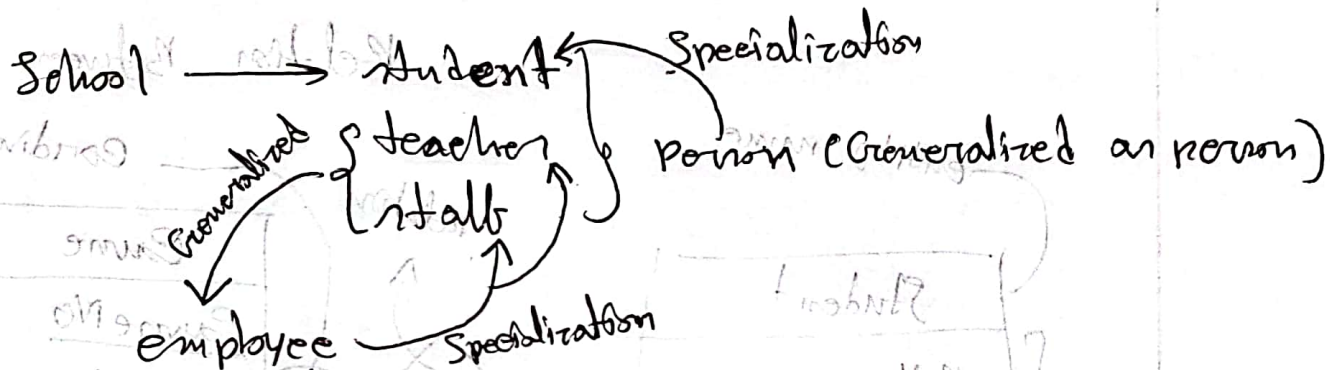
we can find age by using date of Birth so it is derived attribute

2. Multivalued:

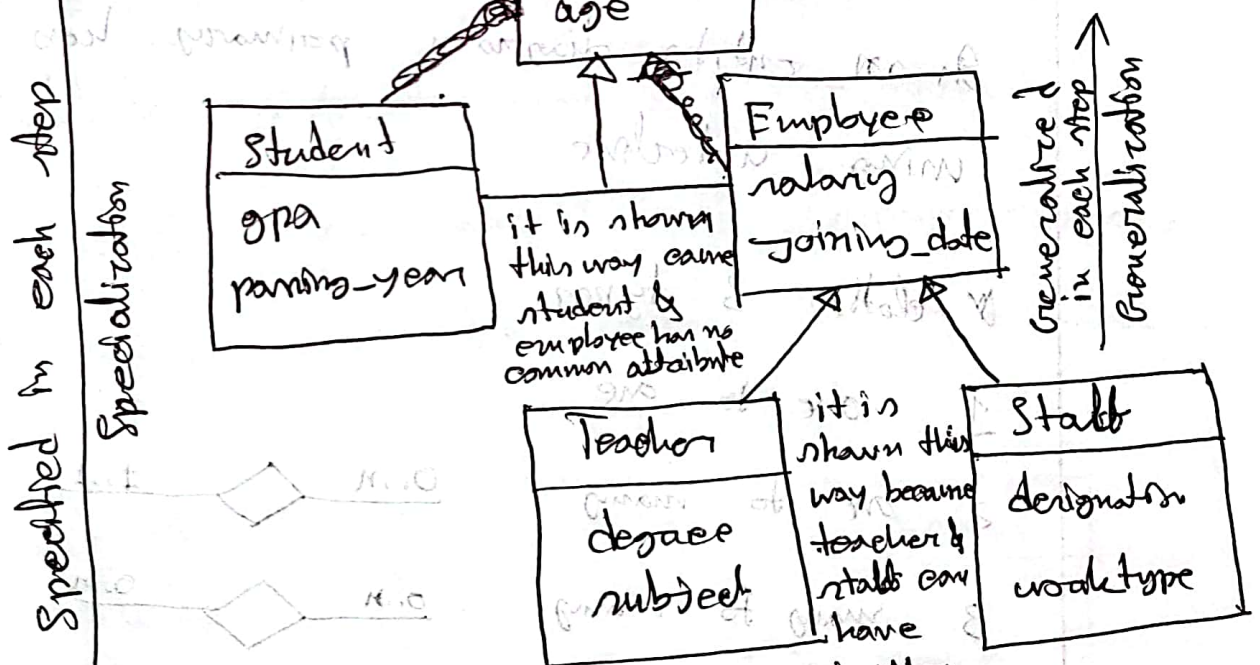


it means there can be multiple phone numbers

# 10-6 ERD Generalization Specialization



this generalized person entity can be inherited



Specified in each step  
Specialization

Generalized in each step  
Generalization



# 10-7 ERD Example (Shopping Mall)

1 requirement also analysts 197 2-01

## Entities

Product

Customer

Bill / Invoice

~~Settle~~ Cashier

Company

