

A schema design

it is visual representation of structure of the database.

how data will be organised, stored and access.

if you have to design schema of your college.

- ① identify entities: start by identify entities or objects (table).

student, departments, courses, teacher

- ② define Attributes:- for each entity, we have to determine the specific attributes.

identify datatypes of each attributes.

students

id: int
name: varchar
dob: date
email: varchar
address: varchar
class:
roll no. int

courses

.id - int
name - varchar
duration. int
course-teacher

teacher

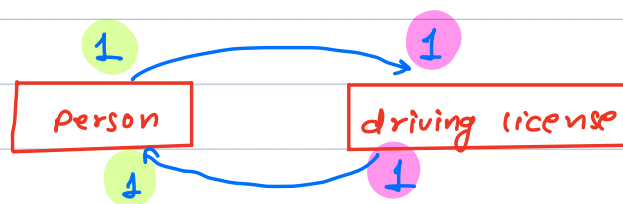
id: int
name: varchar
dob: date
email: varchar
address: varchar
salary: int

department

id
name
Mod

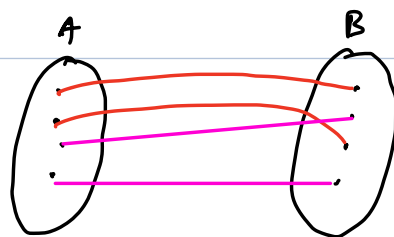
* cardinality of relationship it refers to how many row of one table is associated with how many row from another table.

① one to one :



each person has only one dL.

each dL is assign to only one person.



$1:1 \rightarrow 1$

$M:1 \rightarrow M$

$1:M \rightarrow M$

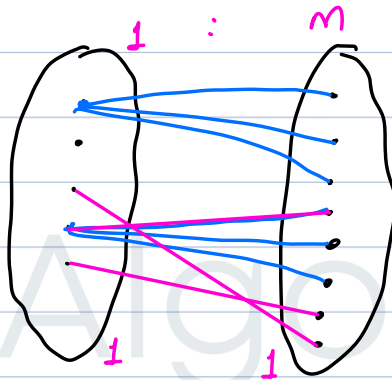
$M:M \rightarrow M$

2) one to many relationship:

Department

Teachers

1 : M



In each department has many teachers.

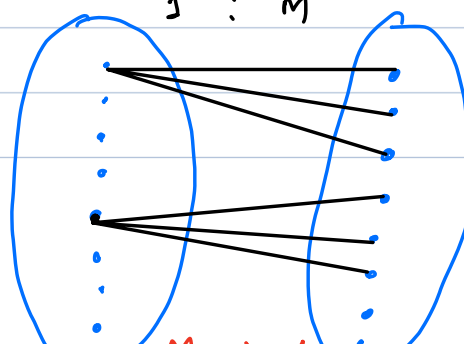
3) many to many

Students

Courses

M : M

1 : M

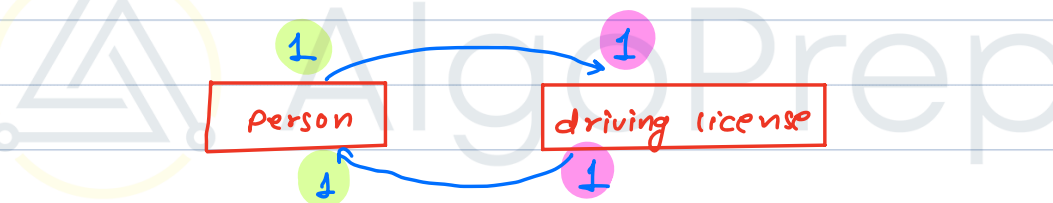


M : 1

each students can take many courses
In each course we have many students.

3) **established Relationship:-** it defines
how entities is related to each other.

one to one:



Person				driving license			
PK	P_Id	name	addr	Lno	age	city	
	1	abc	xyz	3451	35	xy	
	2	per	tuv	3892	24	ab	
	3	ajay	pmb	1234	19	bd	

we can put P-id in driving license table.

we can put L-no in person table.

choose any of them.

2) one to many:

1 : M

Department

Teachers

PK D_id	name	hod	t_id
	1	A	abc
	2	D	def
	3	B	xyz
	4	E	ab
	5	H	cc

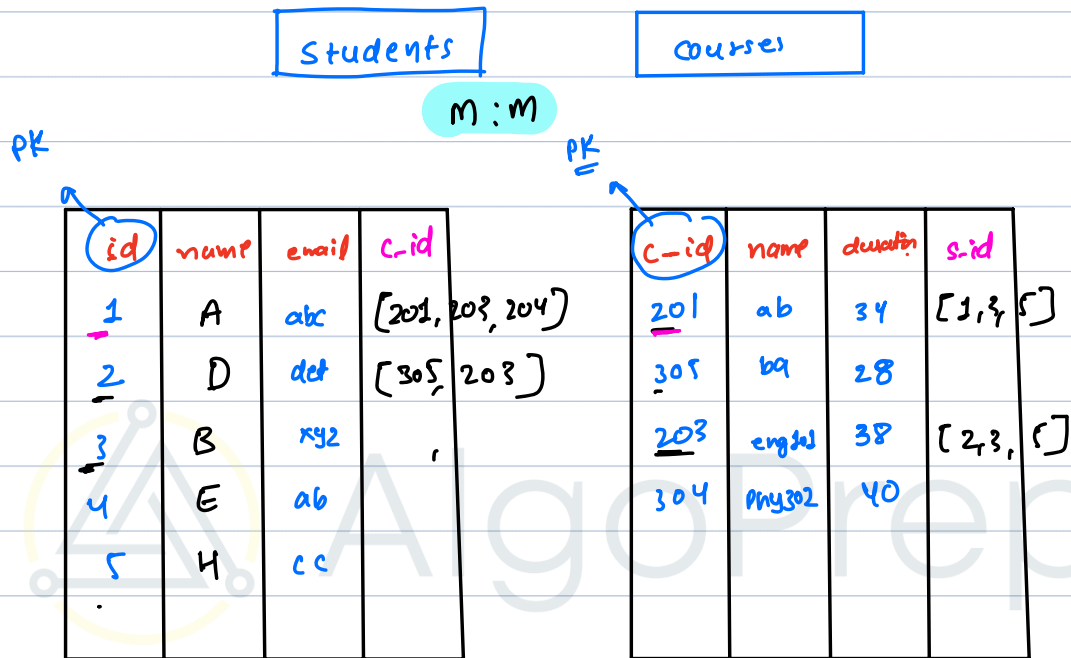
PK t_id	name	add...	FK d_id
	201	ab	
	305	ba	
	203	mayu	
	304	Rahul	

How many teachers in department id = 3:

* Put t_id in department table. X
put d_id in teachers table.

In one to many relationship we select id from "one" side and put on "many" side.

3) many to many



How many students enroll in c-id 203

Select id from students table and put on course table. X

Select id from course table and put on student table. X

we can't store multiple values in a cell

Create a new table

enrollment table

junction table or join table

s-id	c-id
1	201
1	203
1	204
2	304
2	305
3	201
3	203
3	304

{s-id, c-id} → PK

How many students
enrolled in c-id 304.

PK

id	s-id	c-id	start-date	end-date	t-id
1	1	201			
2	1	203			
3	1	204			
4	2	304			
5	2	305			
6	3	201			
7	3	203			
8	3	304			
9					

1

205

27 July

students

id: int
name: varchar
dob: date
email: varchar
address: varchar
class:
roll no. int

course

.id - int
name - varchar
duration: int
course-teacher

teacher

id: int
name: varchar
dob: date
email: varchar
address: varchar
salary: int
d-id: int

department

id
name
HOD

enrollment table

id +
s-id
c-id
c-t
Start date
end-date