

## Many-to-Many relationships

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What is a many-to-many relationship?

Many records in one table relate to many records in another table.

ex- students enrol in classes

- A student can have many classes.
- A class can have many students.

But having this relationship in a database is a **PROBLEM**.

student and class Tables

<u>student</u>		<u>class</u>	
ID	Name	ID	Name
1	John	2	DB01
2	Mark	5	PH01
3	Sarah	7	WEB01
4	Claire	8	WEB02

Now, if we want to relate these two tables together, we put the PK of one into the other table as FK.

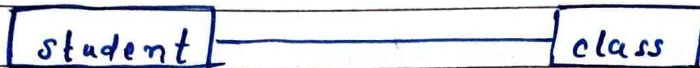
<u>student</u>			<u>class</u>		
ID	Name	class ID	ID	Name	student ID
1	John	2, 5	2	DB01	1, 4
2	Mark	5, 7	5	PH01	1, 2, 4
3	Sarah	8	7	WEB01	2
4	Claire	2, 5, 8	8	WEB02	3, 4

- \* We can't use comma separated value
  - \* We can't add a 2nd class ID column
  - \* We can't add another ~~now~~ because then we are duplicating students.
- } All breaks  
Normalization rules.

So, how do we create many to many relationships.

↳ We create a JOINING TABLE/JUNCTION TABLE  
OR BRIDGING TABLE

Instead of this



We have this

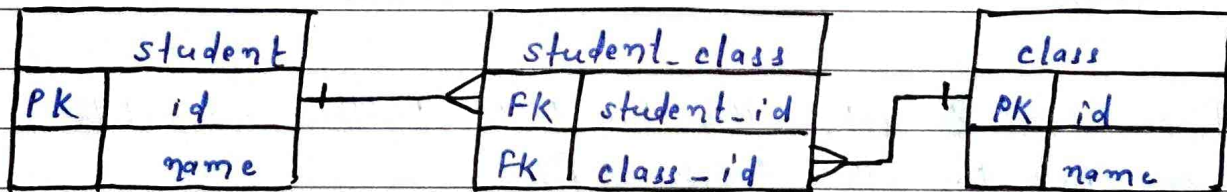


The joining table is used to capture every instance of related data b/w the two tables.

In this ex:- It captures every instance of student and class.

↳ Not every possible combination

↳ just those that you want to store.



This is how many to many relationship is stored in a db as 2 one to many relationships.

Sample data example on next page



student		student_class				class	
ID	Name	ID	StudentID	classID	EnrolDate	ID	Name
1	John	1	1	2		2	DB01
2	Mark	2	1	5		5	PH01
3	Sarah	3	2	5		7	WEB01
4	Claire	4	2	7		8	WEB02
		5	3	8			
		6	4	2			
		7	4	5			
		8	4	8			

- \* No need of PK. But we can always have that if we need.
- \* We can add additional data to it. In this ex:- enrolDate

Name of the table

student\_class

⇒ very general

enrolment

class-enrolment

Specific & meaningful.