Schema Design - 1

what is schema design?

approach SD

cardinality

$\longrightarrow$ How to find c?

$\longrightarrow$ How to represet c?

Spasue Relations

Schema Design

$\downarrow$ Structure of database

$\searrow$ pictorial representation of how something will look like

requirement / constraints

Tables
columns
PK
FK
index
Relationship
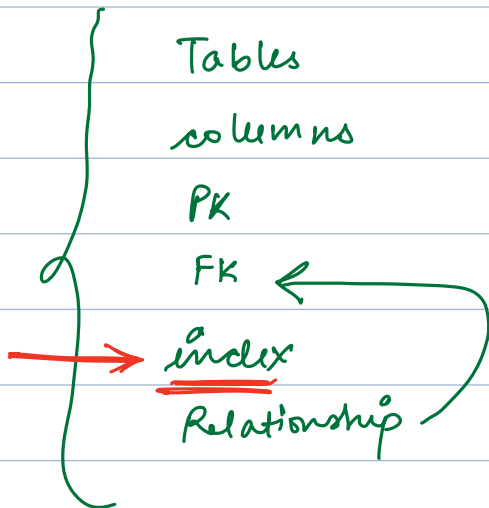
schema
class diagram
Architectural diagram

How to approach schema Design?

Scaler

↑

Netflix
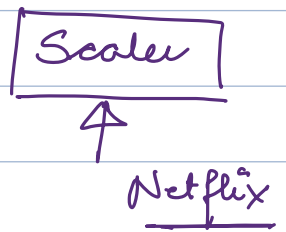
→ Database

① Scaler will have multiple batches.
About each batch we have to store their
name, start month, current instructor.

② Each batch of Scaler will have multiple
Students

③ Each batch has multiple classes

④ For each batch I have to store the name
of the class, date and time of the class,
instructor of class.

⑤ For every student we store their name,
grad year, university name, email,
phone number.

⑥ Each student has a buddy who is also a student

⑦ A student may move from one batch to
another

⑧ For every batch a student goes to we need
to store the start date

(9) Every student is going to have a
mentor. For every mentor we
store their name, and current company.

(10) We have to store the info about
mentor sessions (time, duration, student,
mentor, stud-rating, mentor-rating)

(11) For every batch if it is ACADEMY or
DSML batch.
↓
Data Science
ML

Steps :-

① create the tables

How to identify tables

① just find all the (noun)
that are present in req.

② identify the noun, ask
yourself if you want to
store data about noun

③ if Yes, create the table.

Naming conventions

○ Name of the table should be plural

(Mentors)

(mentor-sessions)

Mentor Sessions

mentor Sessions

:

- batches

batch-id	name	start month	

- Instructor

I.id	name	avg_rating	email	

- students

s.id	name	grad.year	univ	email	phone#

- classes

class-id	name	scheduled-time	

- mentors

m-id	name	company_name	

- mentor-sessions

mentor-session-id	time	duration	stud.raty'	mentor-ralj

- Add all the attributes & the primary key.

Expectations with PK :-

① It should rarely change
   - update index
   - re-sorts the data

② Data type (int)
   1) sort
   2) size

→ id
→ {table-name}_id

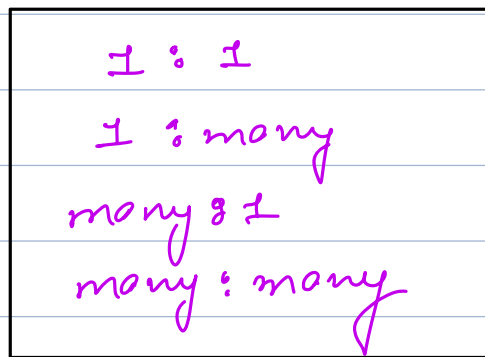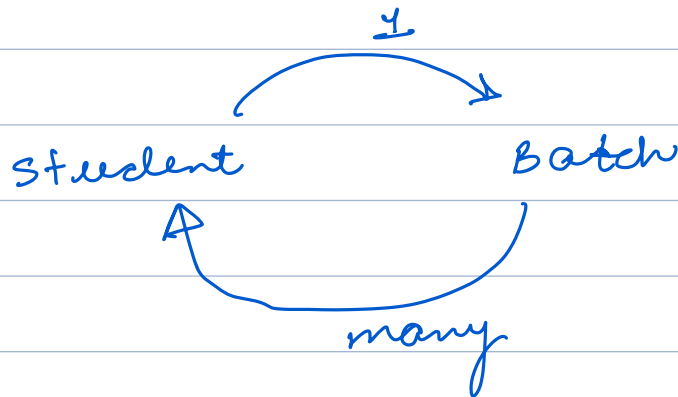| b-id	b-name	b-std	i-id	i-name	i-ovgrdy

why this is
bad design?

Normalisation ← REDUNDACY

How to represent relation? (FK)

cardinality: when two things are related
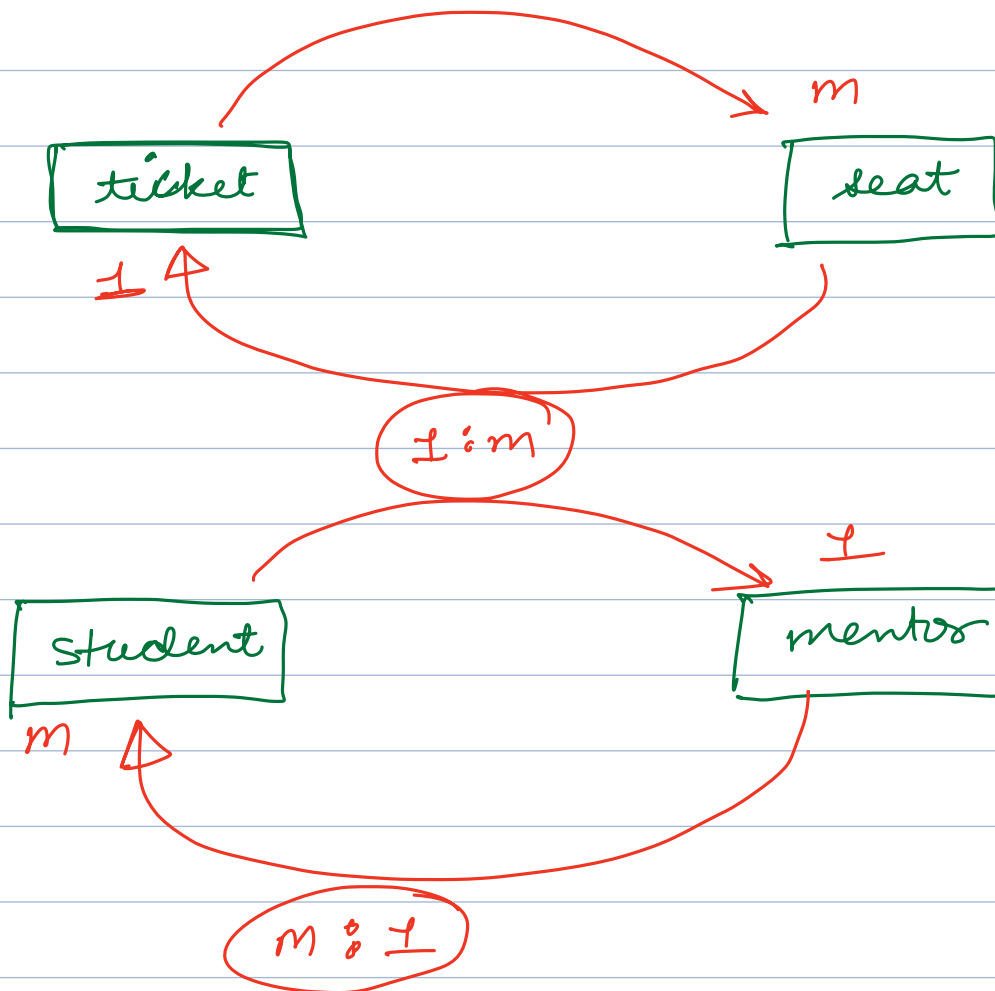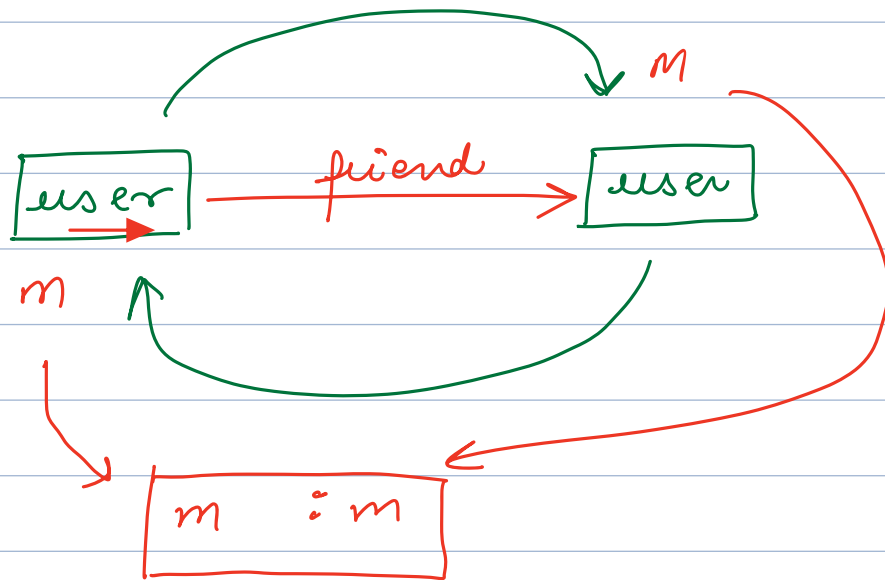to each other, how many of
one is related to how
many of other.

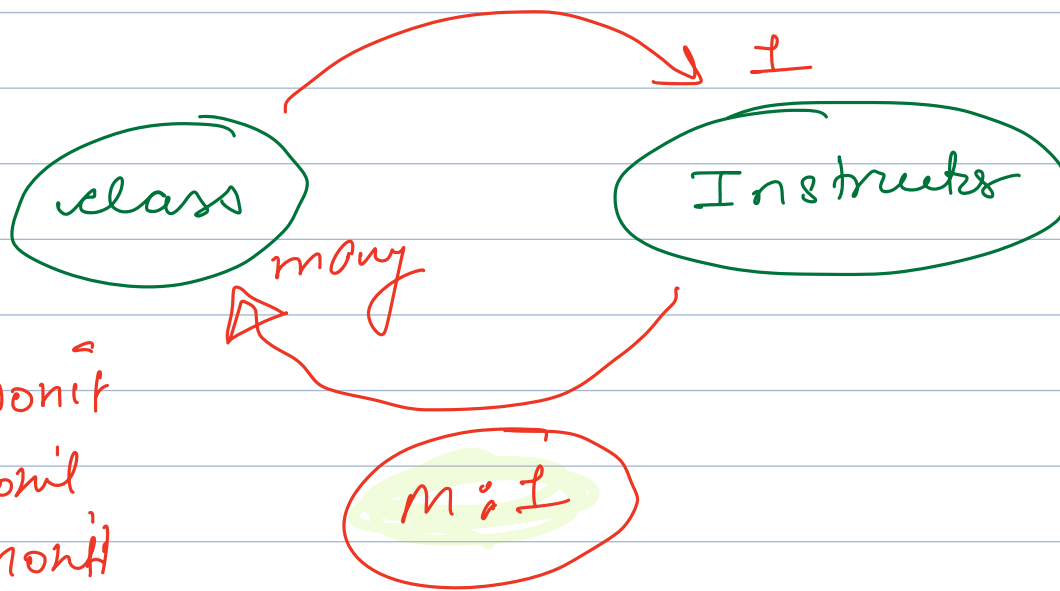

$$1 : 1$$
$$1 : many$$
$$many : 1$$
$$many : many$$

(Yui)   (Boy)   (1 : 1)

what relation?

{ ① finalise 2 entities
{ ② finalise relation

user → friend → user   M

m : m

ticket → m → seat

1 : m

student → mentor   1

m : 1

class → Instructor 1

many

class ⊳—— Instructor

M:1

SQ1 monit
SQ2 monil
SQ3 monil
⋮

Student 1 ——→ course m

Student m ←—— course 1

m:m

order 1 ——→ Products m

order m ←—— Products 1

m:m

Student — Major

1 : 1

m : 1
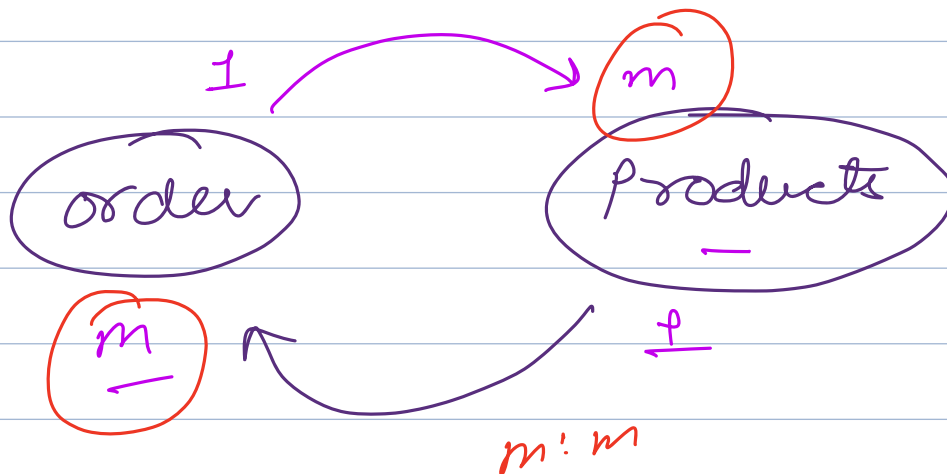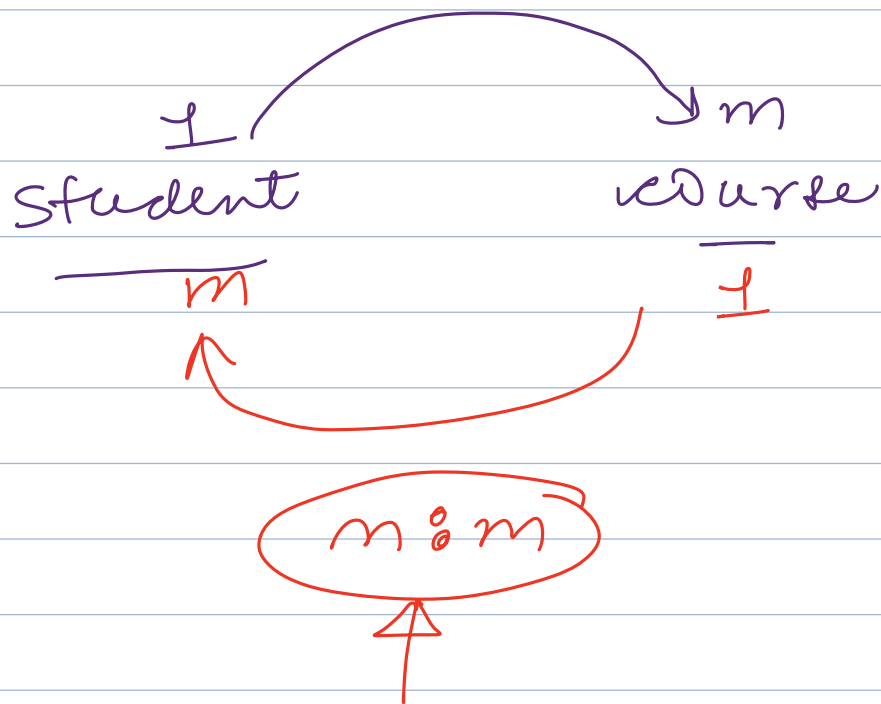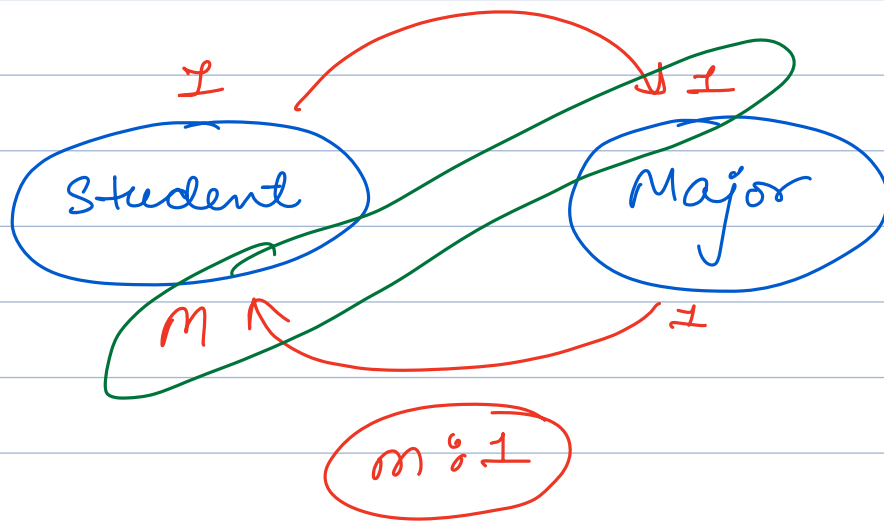
How to represent cardinalities ?

$1 : 1$

(Y) $1 : 1$ (B)

Girl

id	name	b-id
1		4
2		5

Boy

id	name	g-id

id of any (1) side on the other

$$\boxed{1 : m} \quad \text{or} \quad \boxed{m:1}$$

1

Student

m

1

Mentor

1

atomic

s id[a]	s-name	—	—	mid[a]

m-id[a]	m-name	st-id[a]

$[1, 8, 6, 12]$

$\boxed{m : 1}$

id of 1 side on M side

$m:m$

order

o_id	placedAt	✗
1	10:00 pm	[4, 6, 10, 12]

products

p_id	p_name	✗
1	Pen	[1, 6, 10, 12

$m:m$ → table

order_products

order_id	p_id
1	4
1	5
1	7
2	3
2	4
:	:

$1:1 \longrightarrow$ store id is one of the table of other one

$M:1$ ↰

$1:M$ ↰

$m:m$ — New table

$SQL \rightarrow$ mandatory

By next week 60-7.
mock