

## AGENDA

✓ ① complete schema design

✓ ② How to decide Pk for

mapping table →

③ netflix schema design

start by 9:05 PM IST

- ✓ 1.) scalar has Multiple batches
- ✓ 2.) Each batch → name / curr-instruc / start-month
- ✓ 3.) Each batch has Many students
- ✓ 4.) Each batch can have many classes
- ✓ 5.) Each class → Name / date-time / Instructor
- ✓ 6.) For Every student → name / Grad year / univ / Email / Phone-No
- ✓ 7.) Every student has a buddy (who is also a student)
- ✓ 8.) A student can move from batch1 → batch2
- ✓ 9.) For each batch student attends, store start-date of that batch
- ✓ 10.) Every student has Mentor
- ✓ 11.) Each Mentor store name / curr-company
- ✓ 12.) store info on all mentor-sessions
  - \* : time / duration / stud / Mentor / stud-Rating / Men-Rating
- ✓ 13.) For Each batch → store whether DSMC / Academy. →

### ① batches

batch-id, name, start-date, instructor-id,  
batch-type-id

### ② instructors

instructor-id, name, email, avg-rating

### ③ students

student-id, name, email, univ, grad-yr, batch-id, buddy-id,  
mentor-id

### ④ classes

class-id, name, schedule-time, instructor-id

⑤

mentors

mentor-id, name, work-company

⑥

mentor-sessions

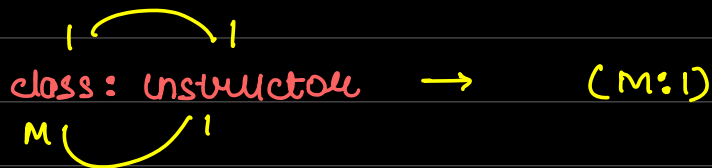
mentor-id, student-id, duration, stud-rating, mentor-rating

⑦

batches-classes

batch-id, class-id

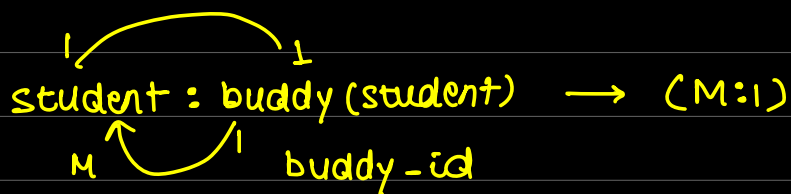
5.)



6.)

x

7.)



8.)

student can move from  $b_1 \rightarrow b_2$

stud: batch      xxx

9.)

→ student → batch    store start-date

(special case)

⑧<sup>th</sup>

table: student-batches

→ stud-id    b-id    move-date

1	1	13/07/23
1	3	30/07/23

10.) Student : Mentor → (M:1)

11.) ✗

12.) ✓ mentor-sessions done

13.) "Academy" OR "DSML"

batches

.....	is-academy	
1 yash .....	1	(academy) → PROBLEM??
	0	(dsml)

✗ This is Not Good,  
Not scalable.

2<sup>nd</sup> Approach → 'string'

↓

id	Name	email	batch-type
			"Academy"
			"DSML"

academy

(✗)

PROBLEM?

- ① Indexing will take time
- ② Typo issues
- ③ More space

Advantages

- ① Easy to Read

### ③ ENUMS

→ batchtype: DSML  
Academy

ENUMS as dropdowns.

→ Enum ? → enumerations  
DSML 0

In Application  
code →

X 1

}

batches

..... batch-type (small-int)

= 0  
1

2

PROBLEM 2.2

① Not readable

② updating / deleting values - can be problem.

Advantage

① Fast Query

② less space

(Approach-3) Mix ① and ②

∴ create New table: → (lookup table)  
(9<sup>th</sup>) table: batch-type -

<u>id</u>	NAME
1	DSML
2	Academy

batch : batch-type → (M:1)

Put batch-type-id in batches

\* P<sub>k</sub> of Mapping tables:

student-batches

stud-id    batch-id    move-date

- ① create 'id'
- ② composite P<sub>k</sub>

id as P <sub>k</sub>	(stud-id + batch-id) as P <sub>k</sub>
① size of P <sub>k</sub> ↓	size of P <sub>k</sub> ↑

## Another Example:

### # New Requirements:

- ① student can be part of many batches (at diff time)
- ② Every batch has exams
- ③ same exam could happen at diff time for diff batches.
- ④ if ③ moves from batch<sub>1</sub> to batch<sub>2</sub>  
He/she might have to Give Exam Again.

student\_batches

s-id   b-id   move-at

Batch: EXAM (M:M)

# batch-exams

\_\_\_\_\_ b-id   exam-id   date-of-exam

student: EXAM → (m:m)

90%

# student-exam

→ s-id   exam-id   batch-id   marks

└────────────────────────────────┘

Composite Pk.

Print   exam-Name, stud-Name, batch-Name, marks

Query is going to be complex.

Note: Most of times, you can have 'id'

### Student+ exam

id	s-id	b-id	ex-id	marks
<u>1</u>	<u>1</u>	<u>1</u>	1	20
2	1	2	1	20
3	2	1	1	30
4	2	3	2	40
5	<u>1</u>	<u>1</u>	1	30

id

① adv: small size

composite key

prob: huge in size

②

if you add 'id'  
in mapping table,  
which works 99% on  
composite key → then  
you will need additional  
indexes

No additional  
indexes

you can use  
composite pk - if  
your usecase is to  
get values 99% from  
that composite key  
↓

pk is indexed  
by default.

also, what if  
you do not need  
JOINS?

(2-3 keys are there  
in your composite



key)

## ★) HOW TO REPRESENT IN INTERVIEW:



describe about indexes and you're fk keys

↓                      ↓

Imp.                  Not Imp.

① - "I will mark index on batch-name col in batches table so as to make queries faster by batch-NAME"

assuming → Requirement:

# student can search  
batches by Name

fk:

similarly describe fk.

★) NETFLIX Schema Design: