Class - Keys

Agenda

Keys : Primary Key
Foreign Key

(1) Super key , Candiate key,
Composite key

- → 26th Holiday
- → Contest + Evaluation
  SQL Mock Int.
- → Whatsapp Group

Key :

id	name	psp	marks	batchId
1				
2	Naman	10	80	1
3	Amit	20	70	1
4	Rohan	13	82	2

Duplicate.

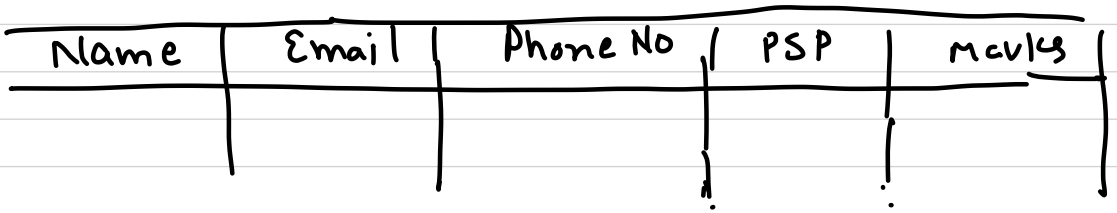
st id = 1

Update marks of Naman as 85.

↓

ambiguity.

Student



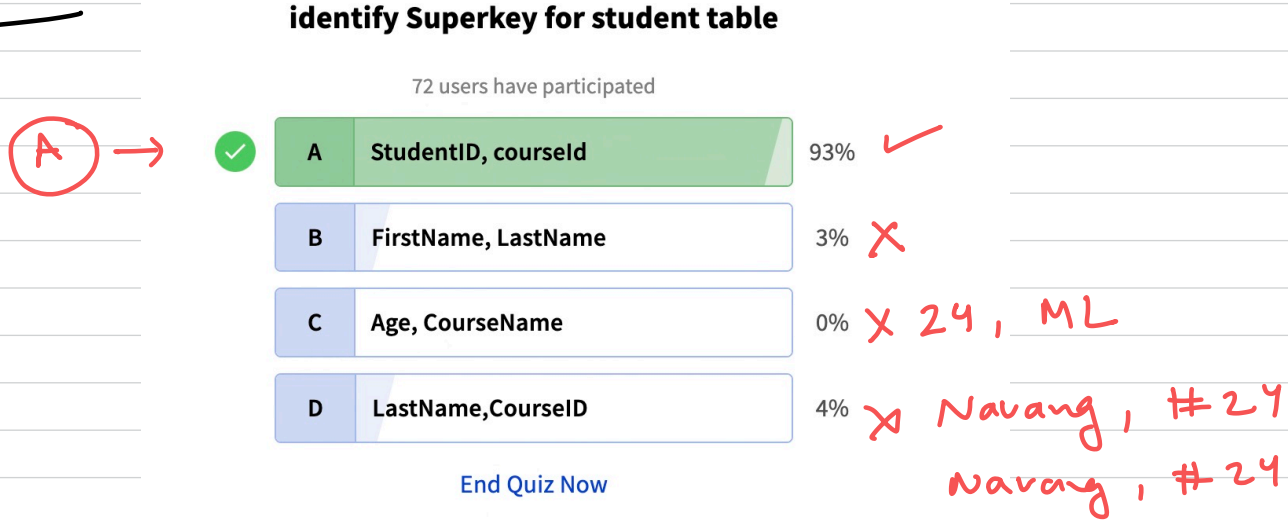
Name ✗
PSP ✗
marks ✗
(psp, marks) ✗

Super-keys

- Email ✓
- Phone No ✓
- (Name, email) ✓
- (Name, Phone No) ✓
- (Email, Phone No) ✓
- (Email, PSP) ✓
- (Email, PSP, marks) ✓
- ⋮
- (all cols) ←

Any col or any set cols that can uniquely identify a row is a Superkey / Key.

Quiz #1



X 24, ML

X Navang, #24

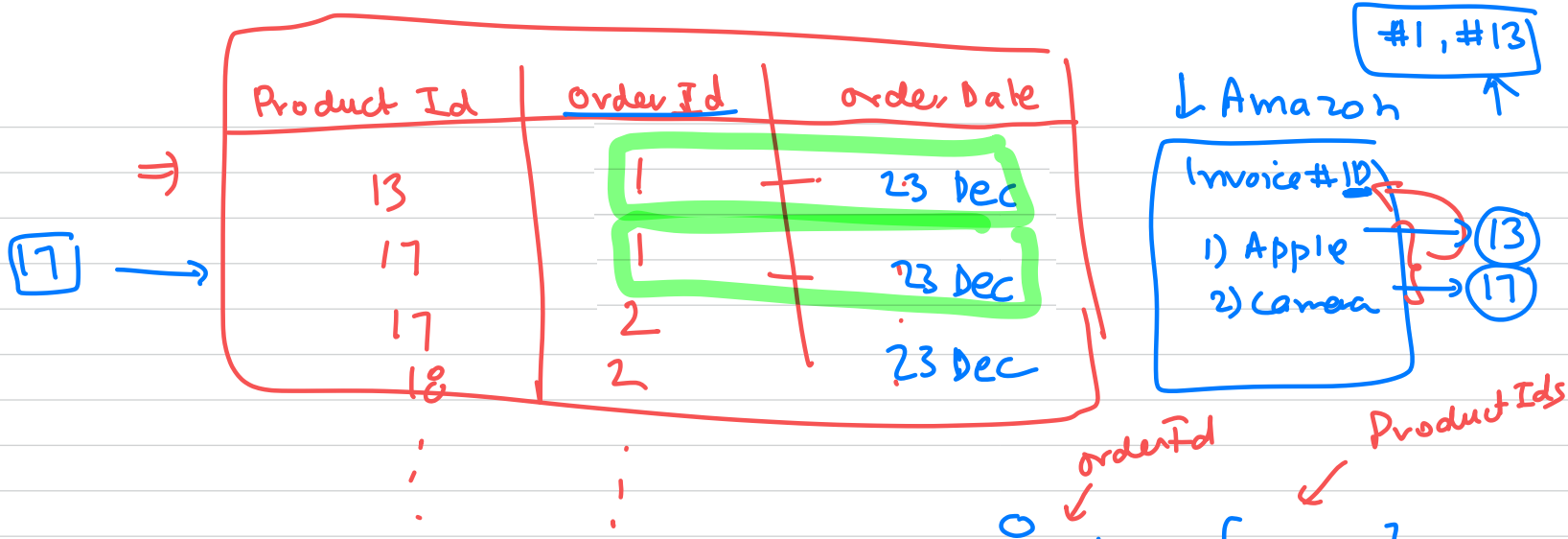
Navang, #24

Identify superkey of student table

73 users have participated

A	StudentId, FirstName	10%
B	StudentId, Age	1%
C	StudentId, LastName	4%
✓ D	All	85%

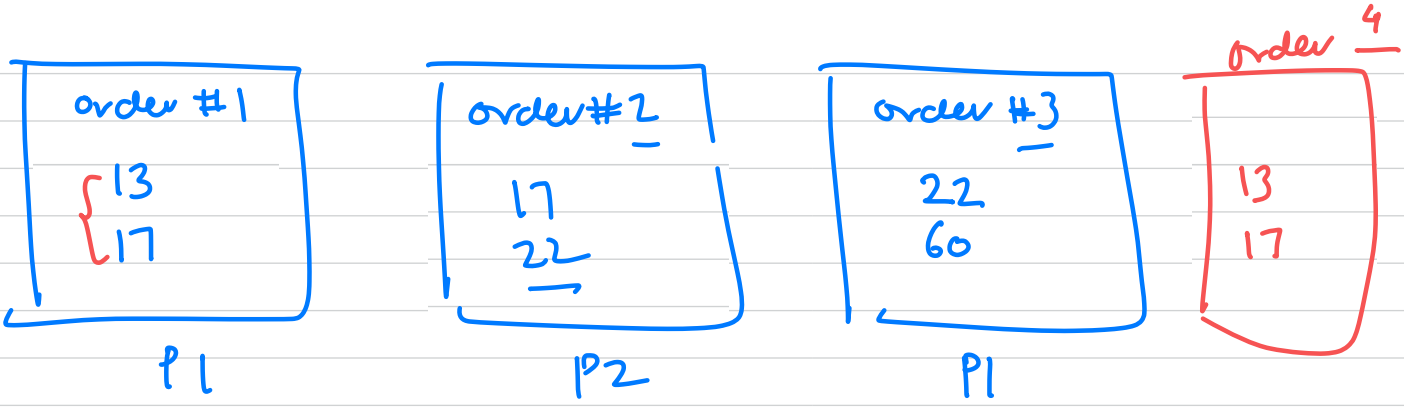
End Quiz Now



- OrderId → ✗
- ProductId → ✗
- order_Date → ✓

OrderId, orderDate ✗

- ProductId, OrderId ✓
- ProductId, orderId, Orderpate ✓



order → id ✗

Product → ✓

(2, 22)

Order Id	Product Ids	Order Date
1	13	23
1	17	23
2	17	23
2	22	23
3	22	23
3	60	23

CK, SK

→ (Order Id + Product Id)

→ (Order Id, Product Id, Date) SK

(2) Candidate keys

Student (name, email, psp)

A candk is a super-key from which no cols can be removed and it still has property of uniquely identify a Row.

Superkeys

⇒ (email) → CK, SK

→ (name, email) → SK

(name, psp →)

(name, email, psp) → SK

student_id	class_id	attendance
1	7	100
2	7	100
3	7	100
1	6	100
2	6	100
3	6	100

7

6

CK is a subset of SK

student_id α

class_id α

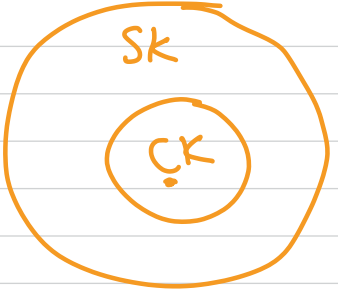
(st_id, class_id) → SK, CK

(st_id, class_id, att) → SK

Is a candidate key always a super key?

73 users have participated

A	Yes	63%
B	No	37%



Is a super key always a candidate key?

76 users have participated

A	Yes	17%
B	No	83%

Which of the following is a Candidate Key for the Employee table?

76 users have participated

A	{EmployeeID, Department}	37%
B	{Email}	58%
C	{FirstName, LastName}	5%
D	{LastName, Department}	0%

SK

#1, ME
#2, ME
#3, CE

Not even a Key:

Kumar, ME
Kumar, ME

not even a key

EmployeeID and Email are unique for each employee, which of these could be a Candidate Key for the Employee table?

72 users have participated

A	{EmployeeID, Email}	21%
B	{EmployeeID}	1%
C	{Email}	3%
✓ D	Both B and C	75%

→ SK, one col can be removed

CK

CK

Primary Key

Database Table

1) Table is sorted acc to PK.
2) Display/Query Table
   ↳ Result are also sorted acc to PK.
3) DB creates an index

DB creates an index based upon primary key by default.
(Index as data structure for faster searching in table)

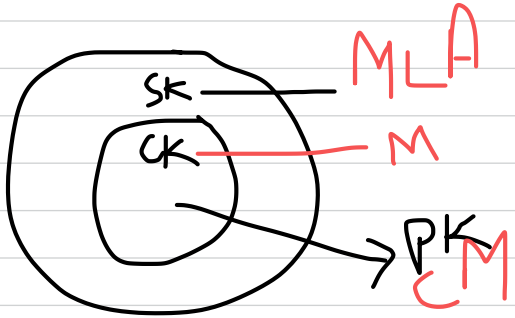
Ideal of PK:

1) should be fast to sort on. For example for
   student -> roll no will be faster than email.

2) have smaller size (index size will be also be smaller)
3) should not change.

For because of above reasons, every table needs only 1 key to
Be used as primary key.

A primary key is candidate key that is chosen to be the key for the table



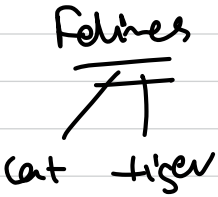
Student Table

Roll No, Name, Email, Phone No

Candidate Keys:
RollNo (PK, CK, SK)
Email (CK, SK)
PhoneNo (CK, SK)

Composite Keys (general term)

↳ any key which is having more than one col is a composite key



Student | name, phone, email |

name ✗
(name, phone) → SK
Comp.

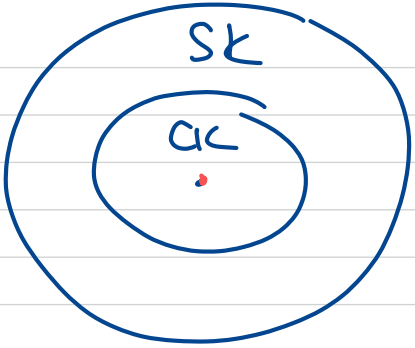
- SK
- CK, → | order_id | prod_id | order_date |
- PK,
- Composite key

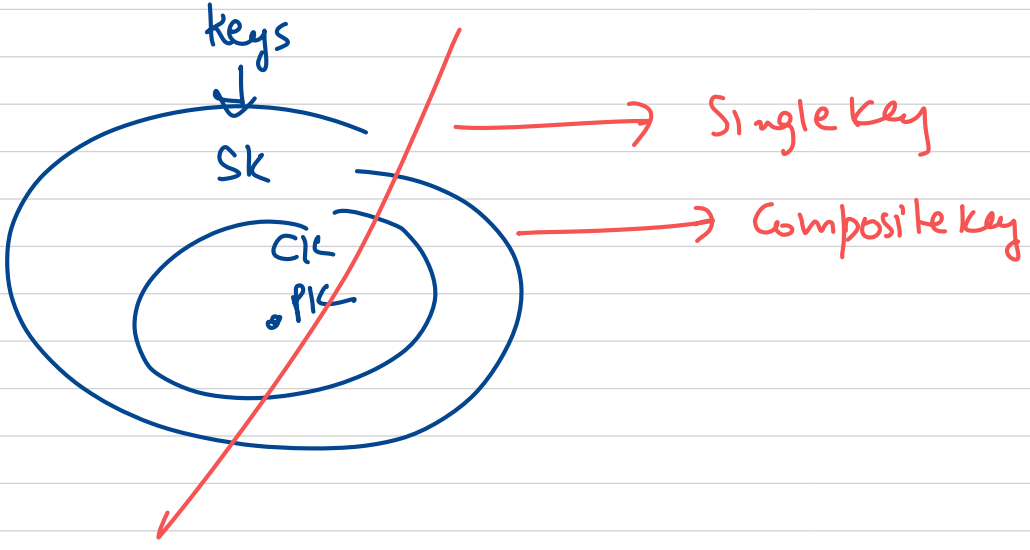
SK, → [order_id, prod_id, order_date]

~~CK~~
~~PK~~ ~~CK~~ Comp. ✓

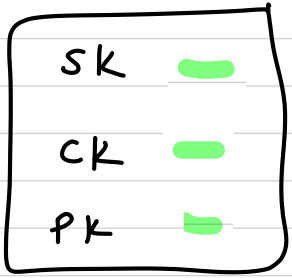
SK, CK, PK

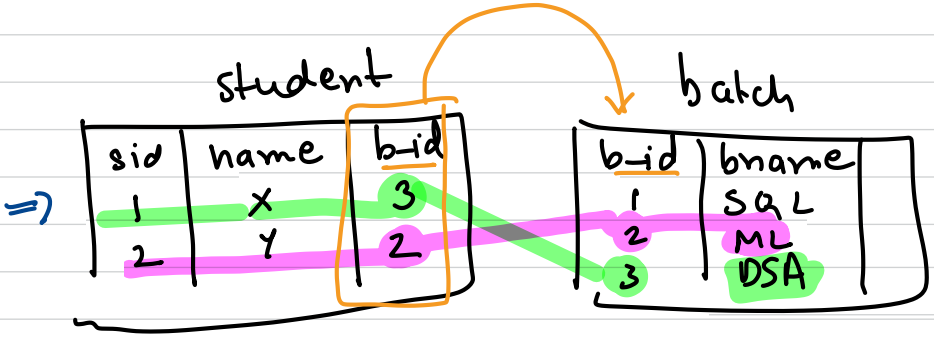
Can be either Single key
or composite key



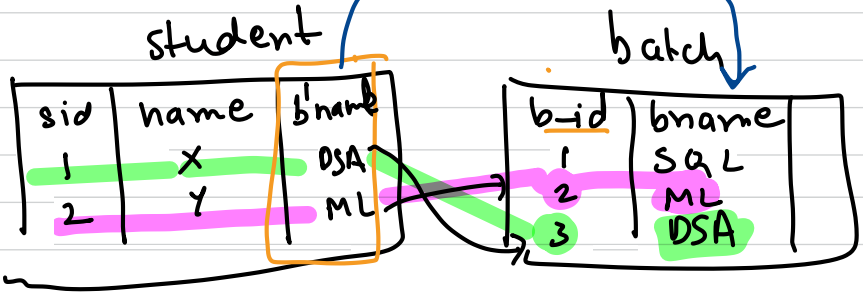


FOREIGN Keys





b_id in student table is Foreign key that is linking me to batch table



b name can also become FK.