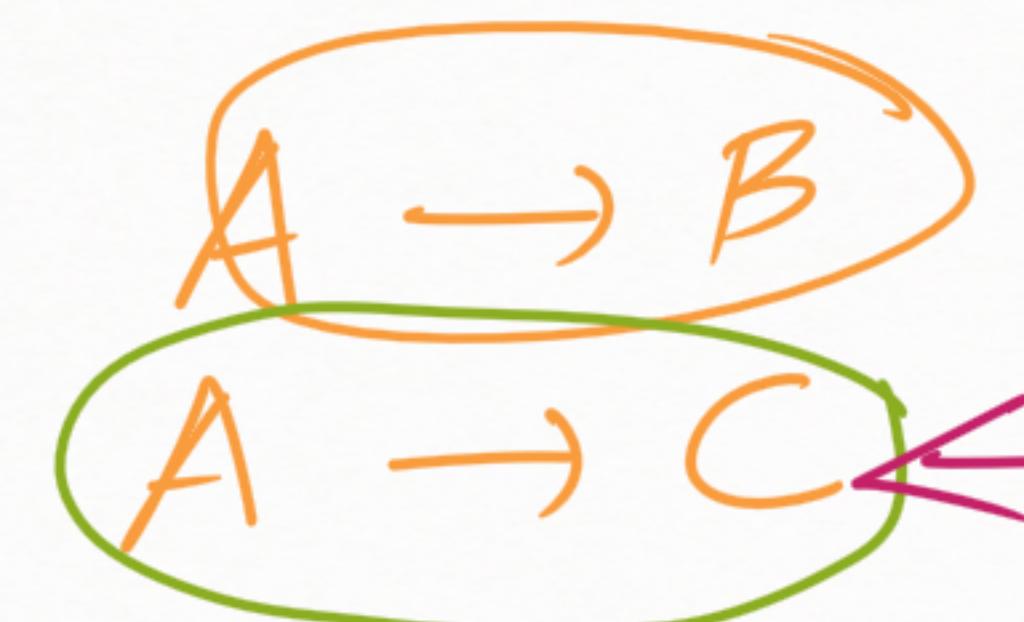


How to rule out the wrong FD

A	B	C
a	i	e
a	i	f
b	2	g
b	2	h

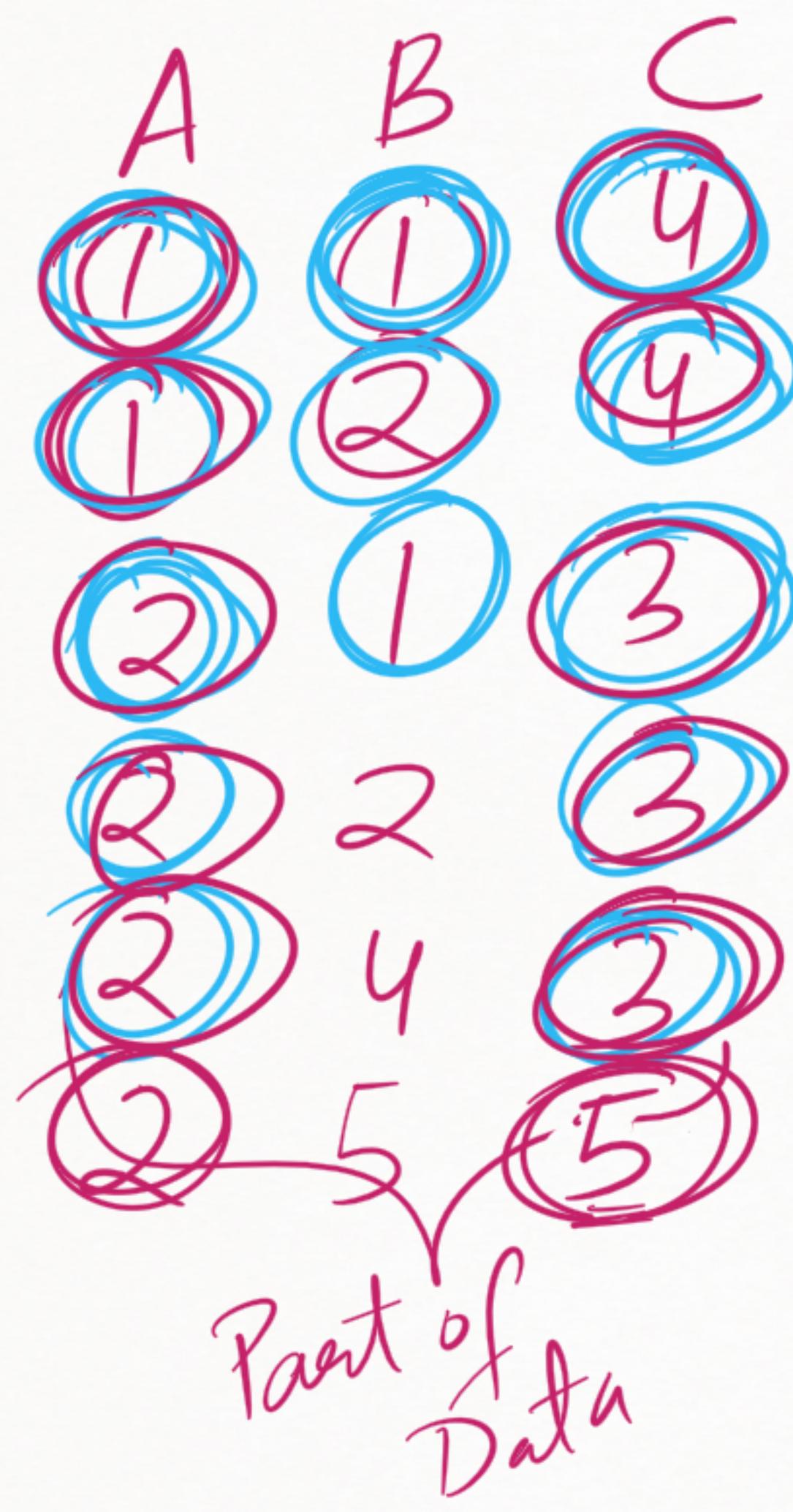


We can not comment on this FD, it could be correct.

This FD is wrong.

Case 1) Whenever A repeats, C should also repeat.

Part of
a huge
table with
many Rows



FDS

~~(1)~~ A → B

~~(2)~~ B → C

~~(3)~~ B → A

~~(4)~~ C → B

~~(5)~~ C → A Maybe

~~(6)~~ A → C

Wrong FD

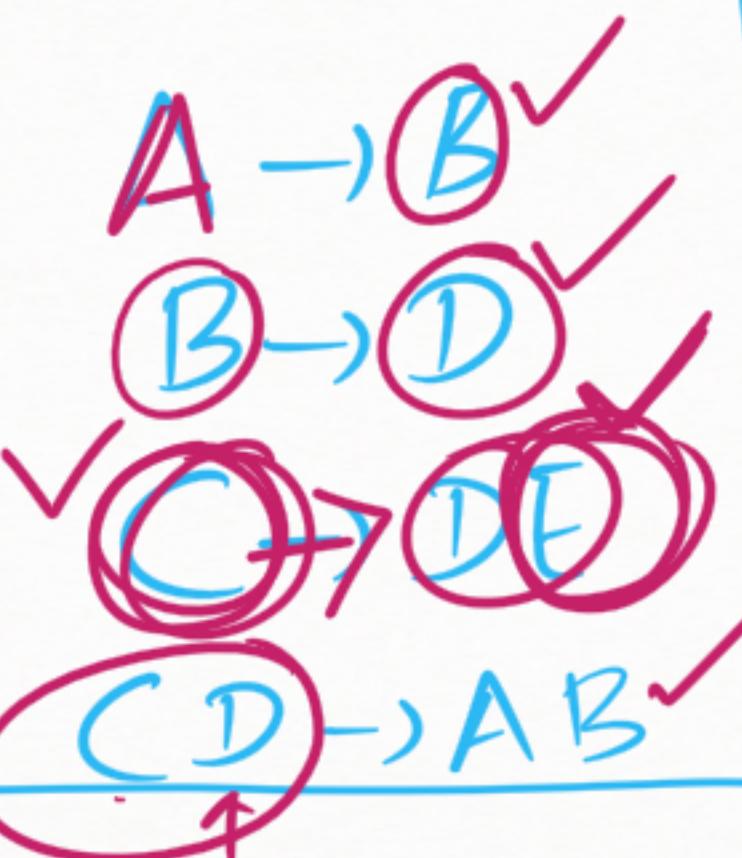
A > 1, 2, 3, 4

B > None

Closure Set of Attributes

A	B	C	D	E

FD's



$$A^+ = \{A, B, D\}$$

(Closure set of A)

Whenever something
is here we can
use that

Closure set of B

$$B^+ = \{B, D\}$$

$$C^+ = \{C, D, E, A, B\}$$

$$D^+ = \{D\}$$

$$CD^+ = \{C, D, A, B, E\}$$

$$CE^+ = \{A, B, C, D, E\}$$

$$AB^+ = \{A, B, D\}$$

$$AC^+ = \{A, B, C, D, E\}$$

$$AD^+ = \{A, B, D\}$$

$$BD^+ = \{B, D\}$$

$$ABD^+ = \{A, B, D\}$$

$$ACD^+ = \{\text{all}\}$$

$$E$$

Candidate Key & Super Key

① Candidate Key \Rightarrow Given an attribute or a collection of attributes, we will be able to uniquely identify a row.

Note 1 If there is a collection of attributes, then those attributes have to be minimal.

Def2 - Closure set of Attribute of a Attribute/s contains all the attributes.

Note 2 There can be many CK

$$C_K = \{C\},$$

ID1	ID2	Name	Clan
1	A	Mohan	II
2	B	Rohan	II
3	C	Mohan	I

What is the Name for ID1 = 2. Can you ans it without any doubt? \Rightarrow YES Rohan

For Clas II, what is Name, Can you ans it without any doubt?
NO, Mohan OR Rohan?

'AAB' 'I12'

$\checkmark \quad ID1^+ = \{ ID1, ID2, Name, Clan \}$

$ID2^+ = \{ ID1, ID2, Name, Clan \}$

* Primary Key \Rightarrow It is just one of the many Candidate Keys that we wish to choose.

* There is only 1 and 1 Primary Key.

IBB173--

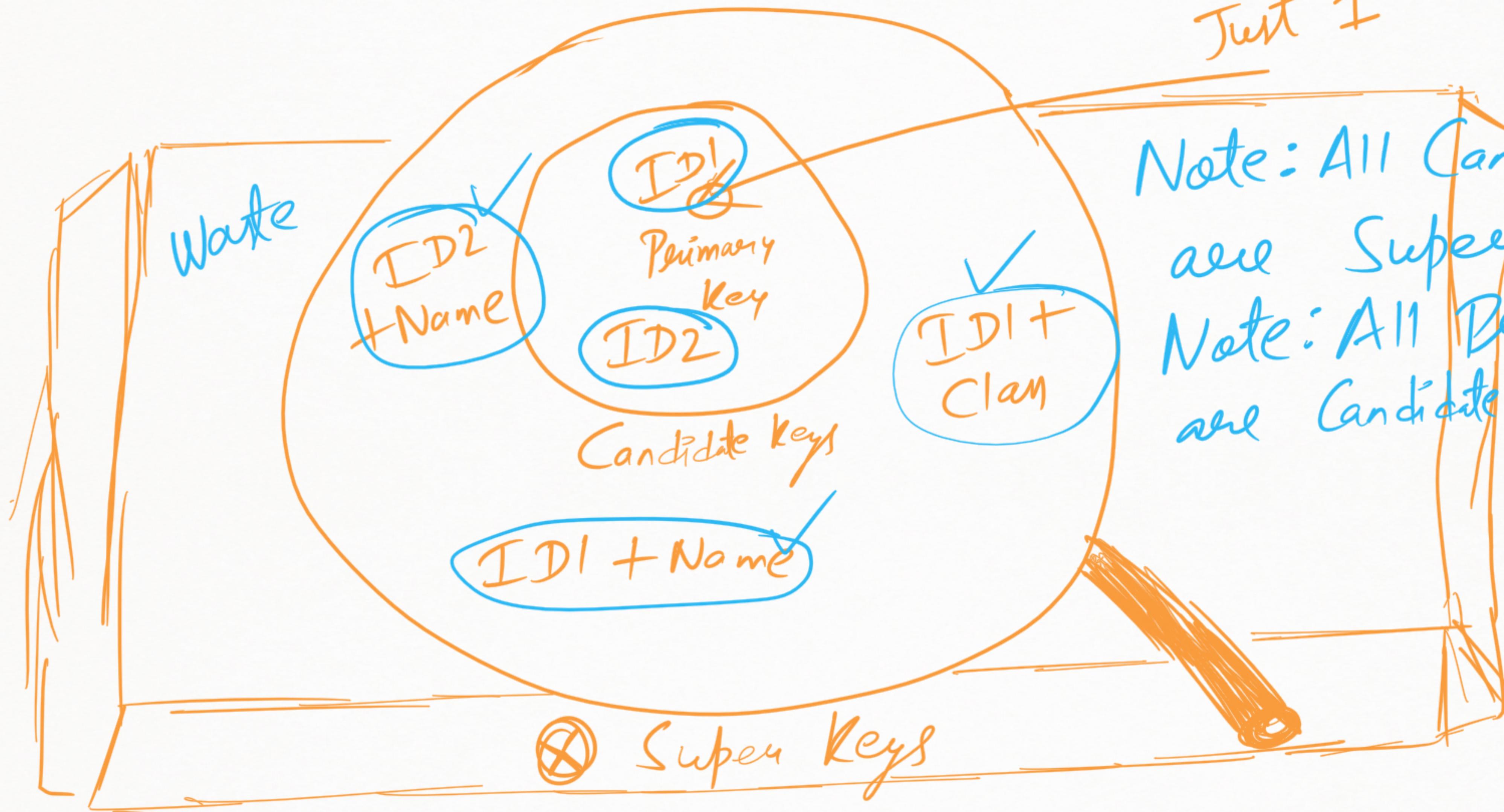
Aadhar No	Pan Card No	
5591 ---		

Super Key = Candidate Key +
Waite
Not needed
to Uniquely identify
a Row

⇒ Many Super Keys

ID1	ID2	Name	Clan
1	A	M	"
2	B	R	"
3	C	M	:

IDI + Name
IDI + Clan
ID2 + Name } SK



Just 1

Note: All Candidate keys are Super Keys

Note: All Primary keys are Candidate Keys.

Sub	Teacher Name	Dep
A	Syed	IT
B	Ankit	CS
A	Mohit	CS
C	Syed	Maths

~~Only Data~~

~~Minimal~~

What are Ck's here?

Sub X-

Teacher Name X

Dep X

Sub + Teacher Name ✓ CK

Sub + Teacher Name + Dep X

Teacher Name + Dep ✓ CK

Sub + Dep ✓ CK

1st Normal Form

Name	Gender	Phone No
A	M	90016 - - - B20 - - -
B	F	9928 - - -, 7426 - - -

Person

Person is
Not in 1st Normal
Form

Multiple Values
in a Single Cell
Condition
Form \Rightarrow 1st Normal
for
Atomicity.

1st Normal

Name	Gender	Phone No1	Phone No2

1st Normal
Form ✓

