RELATIONSHIP DATA MODEL

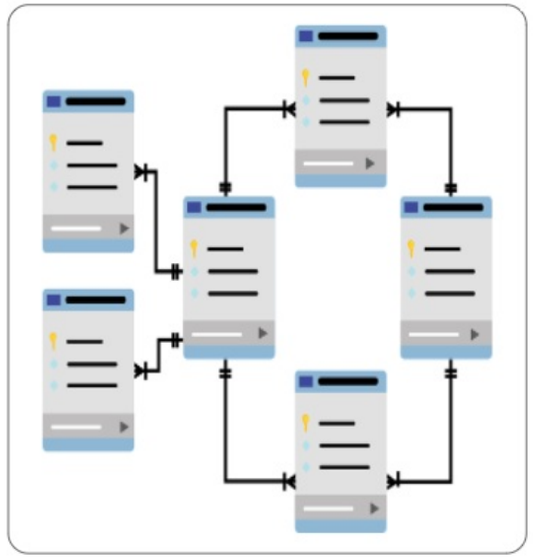
Proposed by EF Codd in 1969

Model data in the form of relations

Based on two concepts:

- Tables
- Relations

Relationships (1:1, 1:n, N:N)



Relationship

Good or Bad ?

Good

Bad

Depends

important

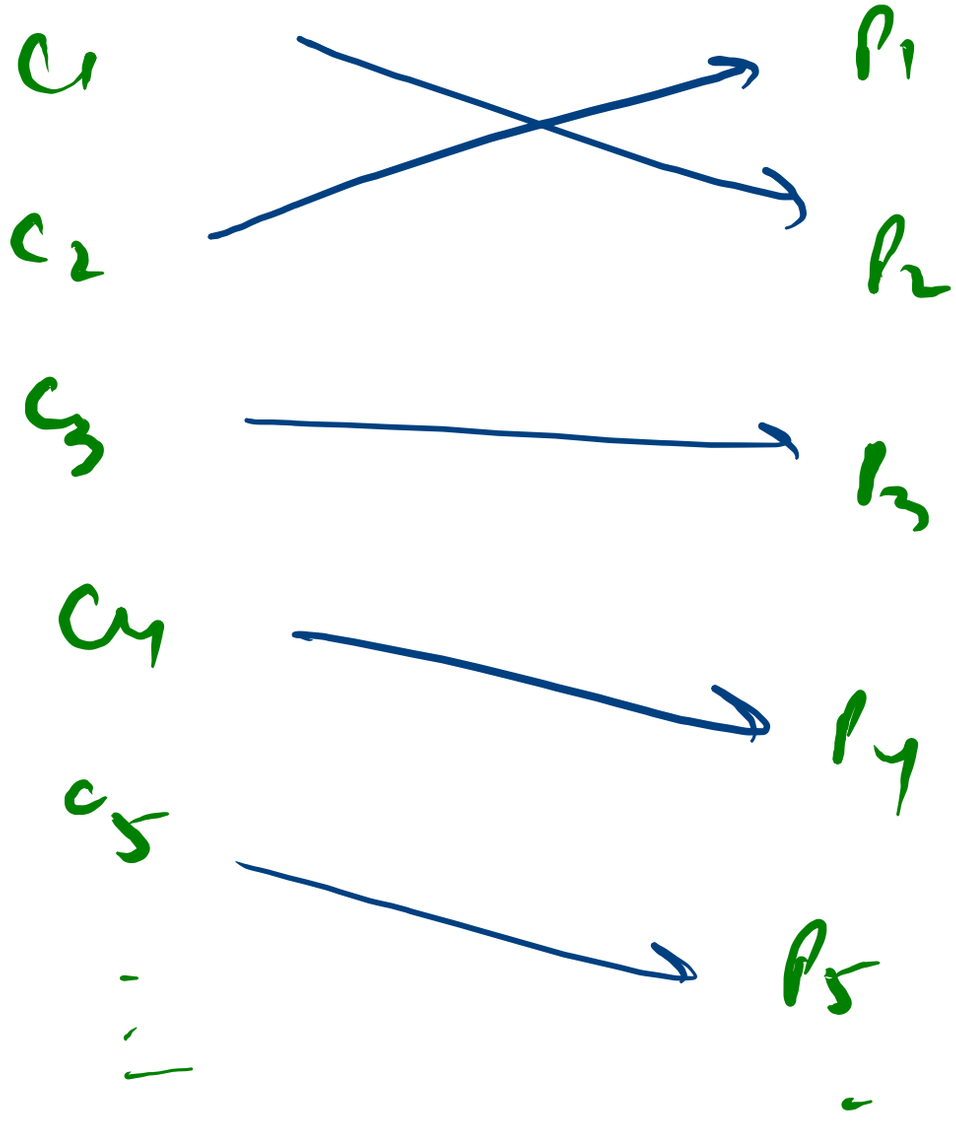
Yes!!!

One to One }

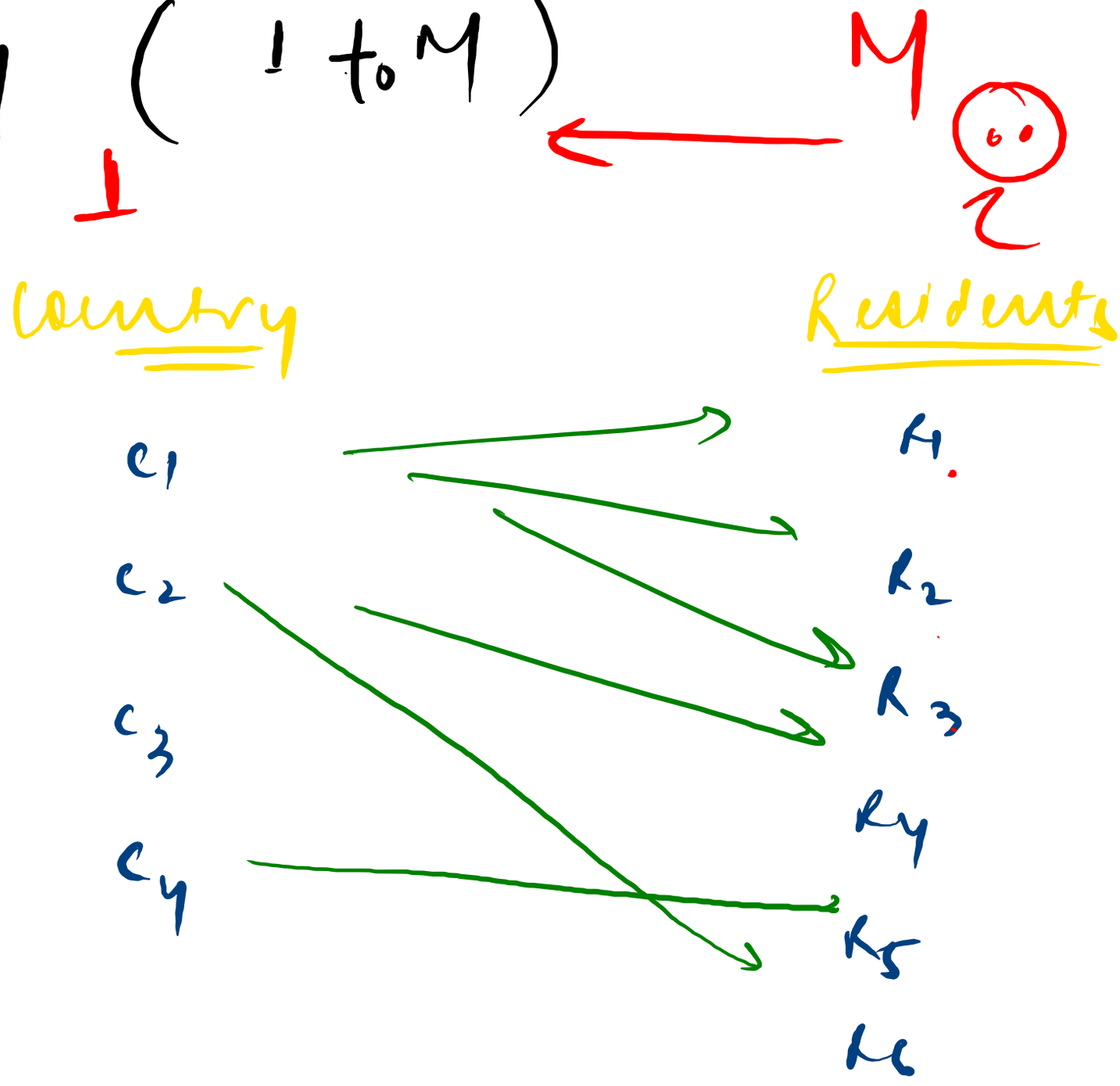
1 to 1 Relations }

Citizens

Passport



One to Many (1 to M)



Same / set universe images

1 to M

or M to 1

Persons

1 to M

M to 1

Mobile phones

P_1

P_2

P_3

P_4

M_1

M_2

M_3

M_4

M_5

M_6

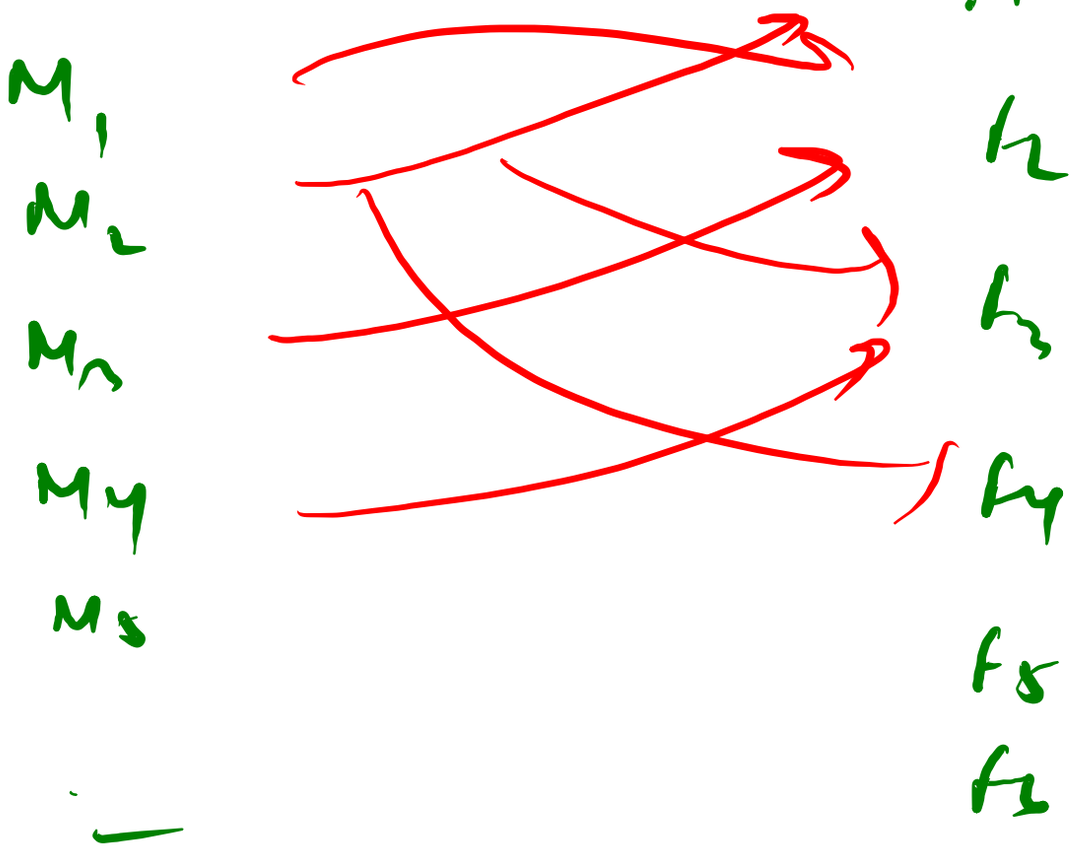
M_7

M 2 M (Many to many relationship)

Tinder

Males

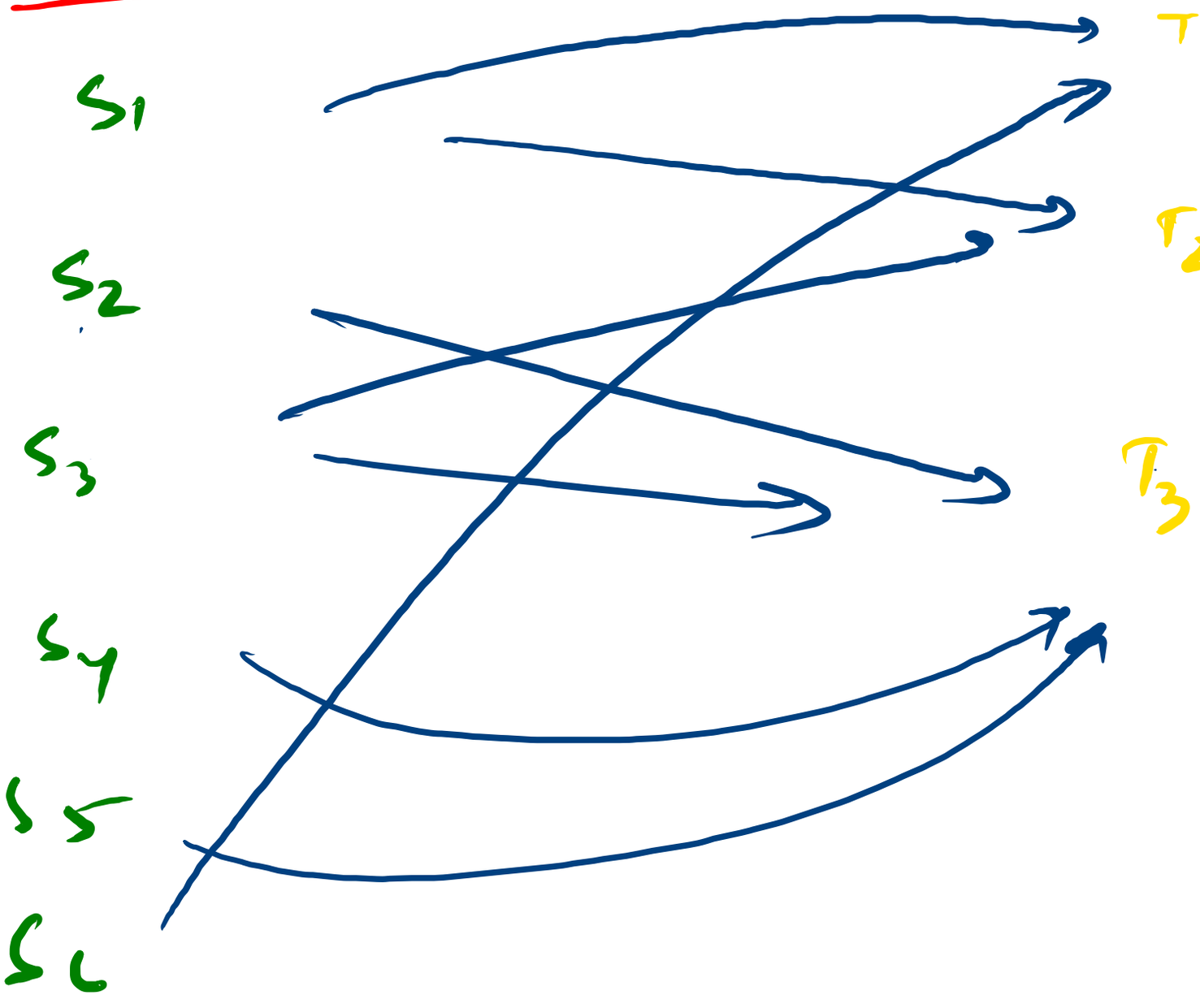
Females



(M to M)

Students

Teachers



$$\begin{cases} w \circ w \\ 1 \circ w \\ w \circ T \\ T \circ T \end{cases}$$

Keys in RDBMS

key → column / group of columns → uniquely identify each entity in the table

Super key → collection/set of all the possible keys → not necessary

Employee

Emp_ID
Emp_Name
Pan_Num
License_Num
Aadhar_Num

(emp_id), (emp_id, emp_name), pan_num, (emp_id, pan_num)

not considered as the candidate

part of super key

Keys in RDBMS

Candidate key

- column
- combination of necessary columns

→ Uniquely identify a row

Employee

Emp_ID
Emp_Name
Pan_Num
License_Num
Aadhar_Num

Candidate keys

emp_id
pan_num
license_num
Aadhar_num

emp_ID, emp_name → Unique

Keys in RDBMS

Primary key

one of the candidate keys

one of the chosen candidate key, which identifies each row uniquely

Employee

Emp_ID
Emp_Name
Pan_Num
License_Num
Aadhar_Num

PK

Candidate keys

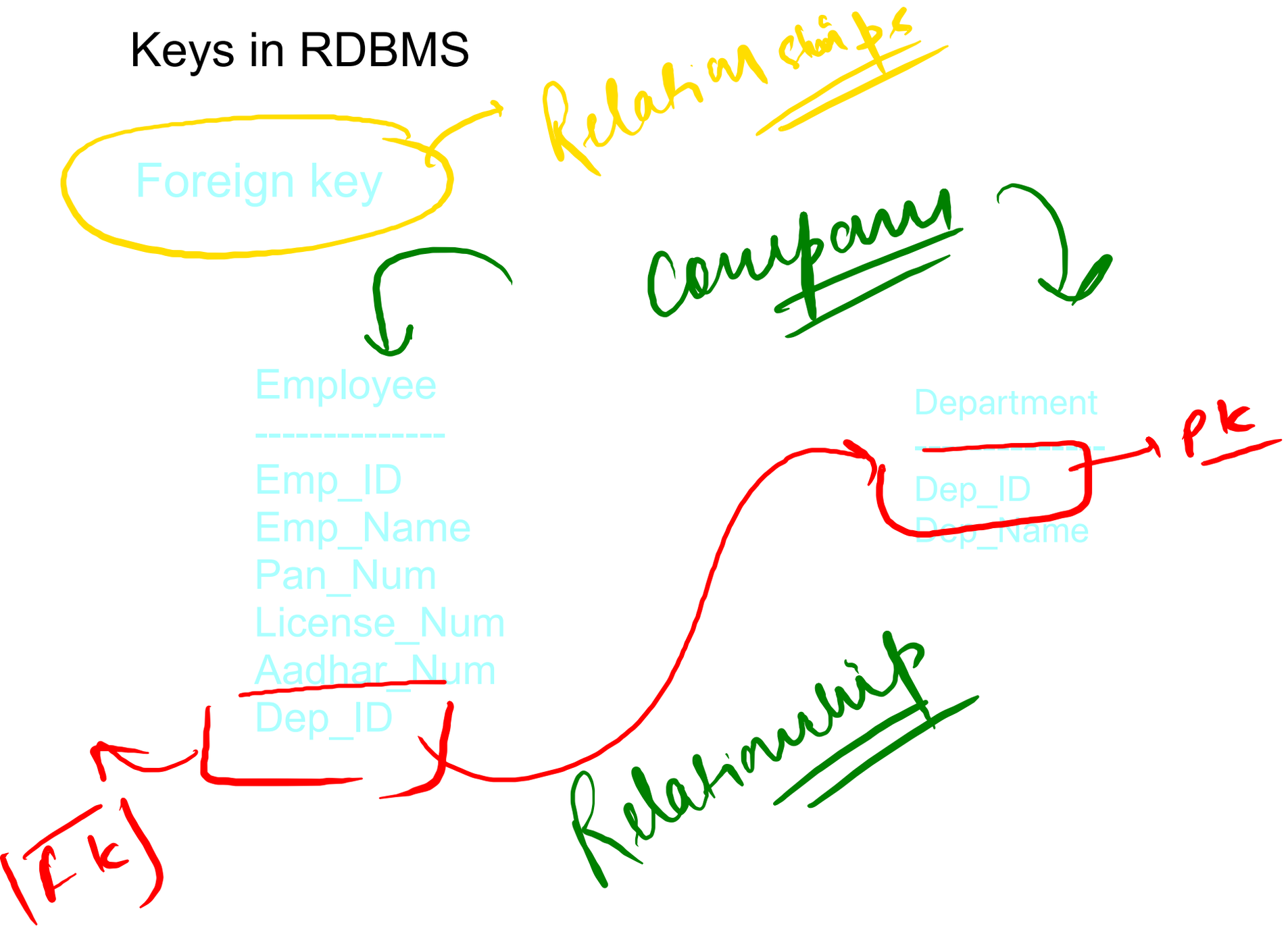
Indian Political system

(PM)

Candidates

Candidates

Keys in RDBMS

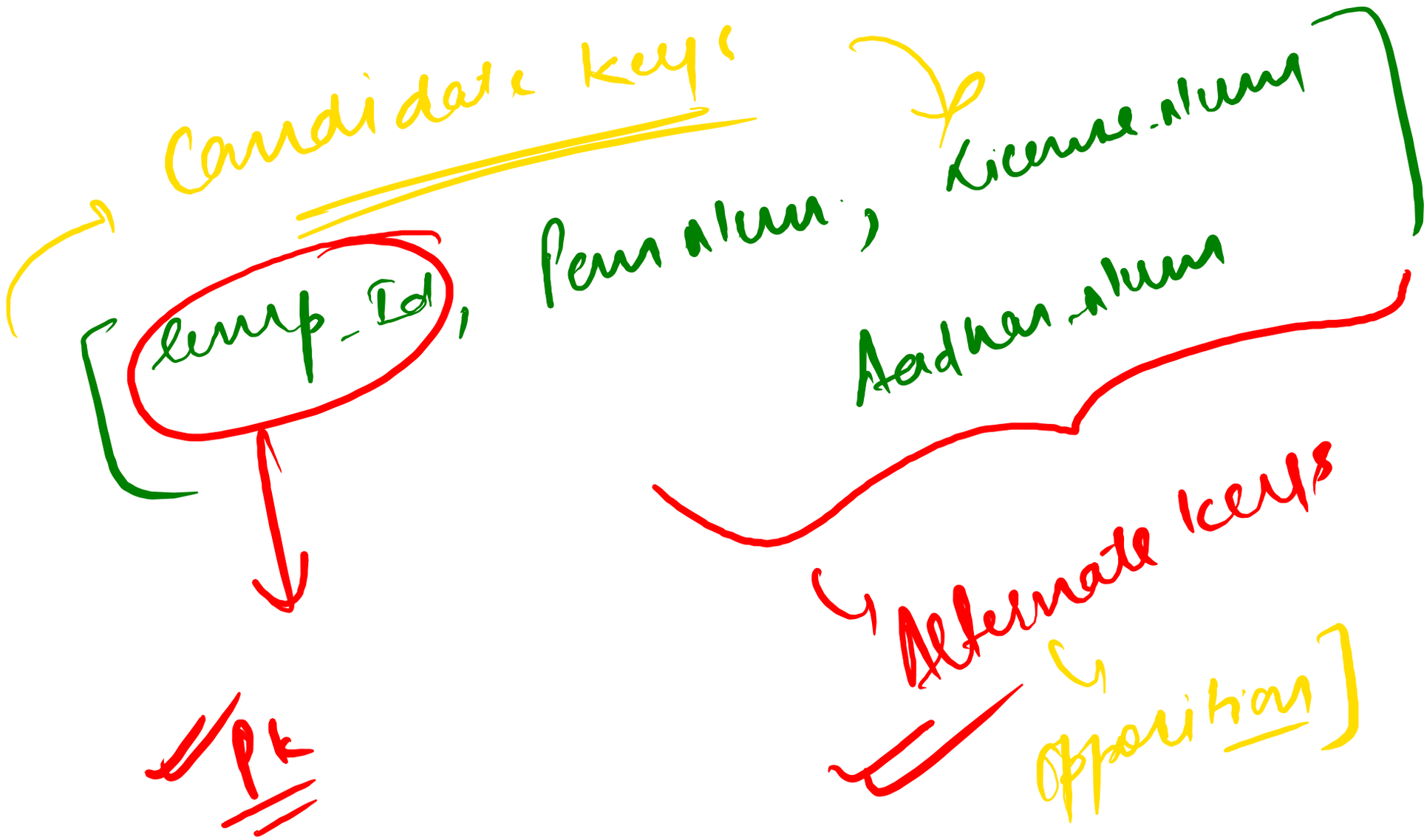


Keys in RDBMS

Alternate key

Employee

Emp_ID
Emp_Name
Pan_Num
License_Num
Aadhar_Num



Keys in RDBMS

Composite key

Primary key

↓

when → comprised of more than 1 column

OrderDetails

Cust_ID

Order_ID

Prod_Code

Prod_Name

→ ✗ pk

→ ✗ pk

→ pk ✗

→ pk ✗

composite keys

[Cust_Id, Order_Id, Prod_code]

{ pk } composite primary key

Keys in RDBMS

Artificial key

always unique

id

OrderDetails

Cust_ID
Order_ID
Prod_Code
Prod_Name

PK → composite key

(cust_id, order_id, prod_code)

very lengthy

Primary key

+

Uniquely identify each row

Foreign key

↳ [relationship]