

a primary key is a specific choice of a minimal set of columns that uniquely specify a row in a table.

Identify

\* Primary Key (Pk) may be a combination of multiple columns.

Pk

Roll No	Name	Age
10	Ashish	19
11	Khal	23
12.	Mac	21
13	Mac	21

Roll No	Subject	Marks	Grade
10	Maths	100	A
11	Maths	95	A
10	Science	80	C
12	English	70	D
12	Maths	100	A

Primary Key

~~Roll No + Subject + Marks~~

NOTE  $\Rightarrow$  If I give you a primary key value, you should be able to give other column values without any confusion.

Q1.) Roll No for Roll No = 10 what is Marks?

Primary Key  $\Rightarrow$  (Roll No + Subject)

\* Primary Key      Value  $\neq$  NULL  
  ||                  value UNIQUE

a foreign key is a set of attributes in a table that refers to the primary key of another table. The foreign key links these two tables.]

## Employee

emp_id	first_name	last_name	birth_date	sex	salary	super_id	branch_id
100	David	Vallance	1967-11-17	M	250,000	NULL	1
101	Jan	Levinson	1961-05-11	F	110,000	100	1
102	Michael	Scott	1964-03-15	M	75,000	100	2
103	Angela	Martin	1971-06-25	F	63,000	102	2
104	Kelly	Kapoor	1980-02-05	F	55,000	102	2
105	Stanley	Hudson	1958-02-19	M	69,000	102	2
106	Josh	Porter	1969-09-05	M	78,000	100	3
107	Andy	Bernard	1973-07-22	M	65,000	106	3
108	Jim	Halpert	1978-10-01	M	71,000	106	3

## Branch

branch_id	branch_name	mgr_id	mgr_start_date
1	Corporate	100	2006-02-09
2	Scranton	102	1992-04-06
3	Stamford	106	1998-02-13

## Works\_With

emp_id	client_id	total_sales
105	400	55,000
102	401	267,000
108	402	22,500
107	403	5,000
108	403	12,000
105	404	33,000
107	405	26,000
102	406	15,000
105	406	130,000

## Client

client_id	client_name	branch_id
400	Dunmore Highschool	2
401	Lackawana County	2
402	FedEx	3
403	John Daly Law, LLC	3
404	Scranton Whitepages	2
405	Times Newspaper	3
406	FedEx	2

## Branch Supplier

branch_id	supplier_name	supply_type
2	Hammer Mill	Paper
2	Uni-ball	Writing Utensils
3	Patriot Paper	Paper
2	J.T. Forms & Labels	Custom Forms
3	Uni-ball	Writing Utensils
3	Hammer Mill	Paper
3	Stamford Lables	Custom Forms

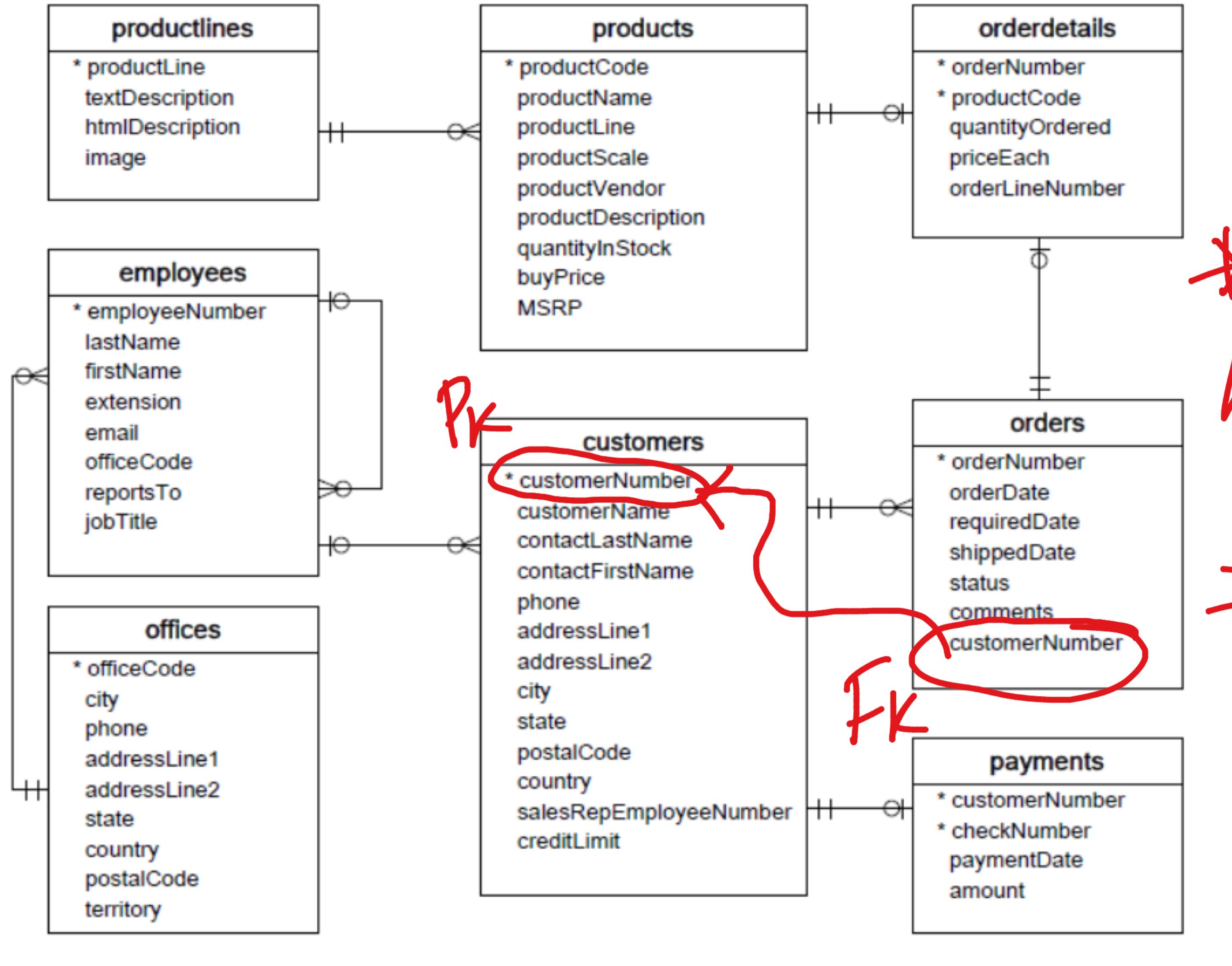
Red → Pk

Green → Fk

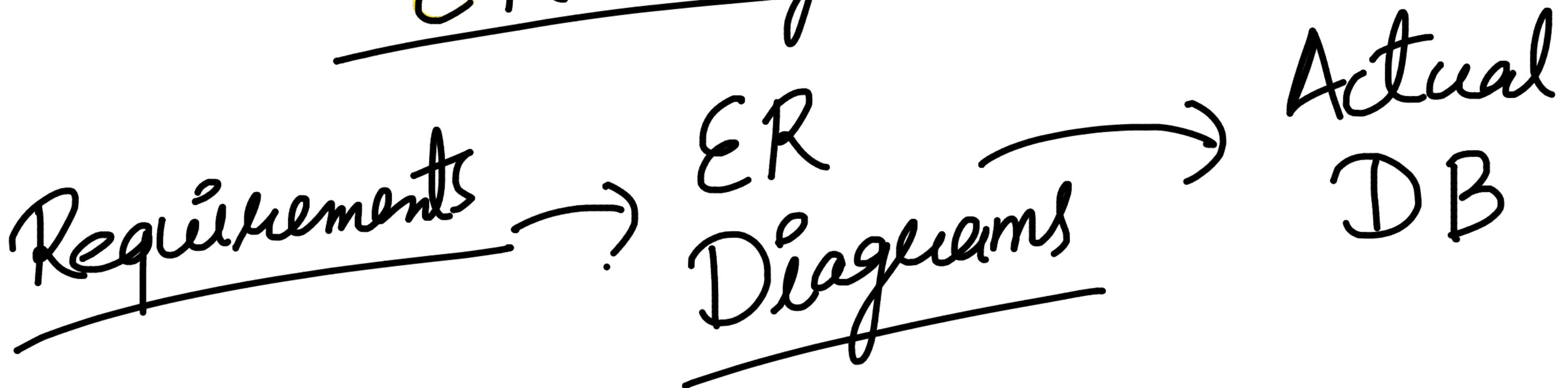
How to delete  
a column which  
is referenced by  
Fk?

ON DELETE  
CASCADE

ON DELETE SET  
NULL



# ER Diagrams

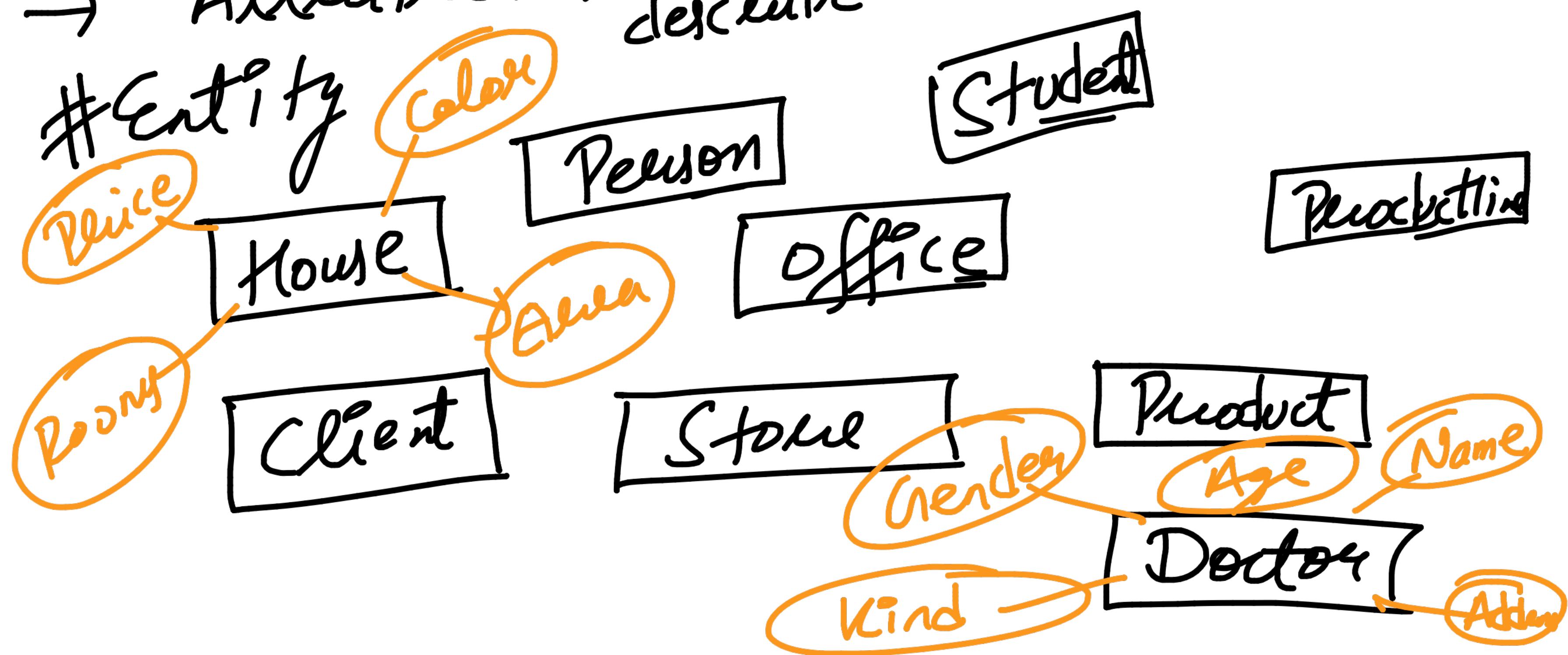


Why ER Diagrams } Discussion  
+ High level View  
which Cuts ✓

→ Entity → Noun, Objects

→ Relationship

→ Attributes → Nouns which describe entities



# #Relationships Association among Entities

