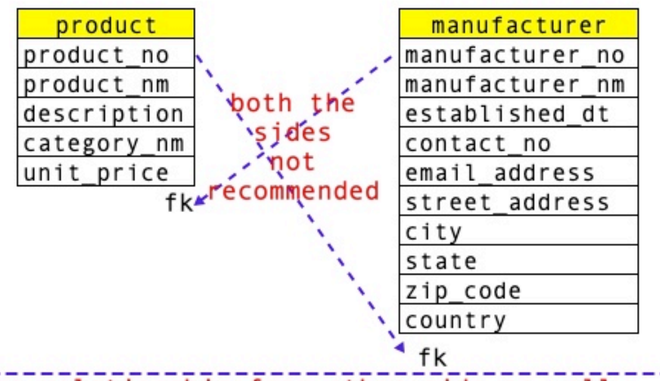
How to establish relationship between the data across the tables?
atleast one of the tables among the 2 has an primary key column, they cannot participate in relationship with each other.
In the below example both of the tables has primary keys. Product table has product_no (pk) primary key and manufacturer table has manufacturer_no (pk) as primary key.
So inorder to establish relationship, we have #3 options now

1. We can write product_no (pk) of product table as foreign key in another table (manufacturer)
2. We can write manufacturer_no (pk) as a foreign key in product table
3. write both the tables primary key as foregin keys in another tables.

Writing both the tables primary keys as foreign keys in another table is called “bi-directional” relationship. This means we are establishing relationship from both the sides.
The Bi-directional relationship should not be used in establishing relationships in relational database systems.



when we express one-side of the relationship, using it we can always derive the relationship from other side as well.
For eg.. when we expressed a product (iphone 15 pro) is manufactured by an manufactured by manufacturer (Apple) by writing product_no (pk) as foreign key in manufacturer table

[product]			[manufacturer]	
product_no (pk)	product_nm	manufacturer_no	manufacturer_nm	product_no (fk)
p1	iphone 15 pro	m1	Apple	p1

we can always can find Apple manufacturer is manufacturing which product
and even
an Product is manufactured by which manufacturer using the same primary key and foregin key relationship

So establishing bi-directional relationship is going to waste the memory by recurringly expressing the same. So always RDBMS relationships are “uni-directional”.

So From the above we are left with only #2 options in establishing relationships.
1. product_no (pk) can be written as foreign key in manufacturer table
2. manufacturer_no (pk) can be written as foreign key in product table

which one should we choose?
it depends on what type of relationship we want to establish (one-to-one, one-to-many or many-to-many).