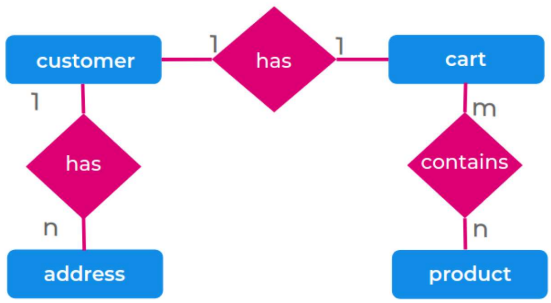
ER Model to Relational Database

In the previous cheatsheet, we've learnt to build an ER model for a given scenario. Now, let's convert this ER model to Relational Database.
Let's consider the same e-commerce application.

E-commerce Application

In a typical e-commerce application,

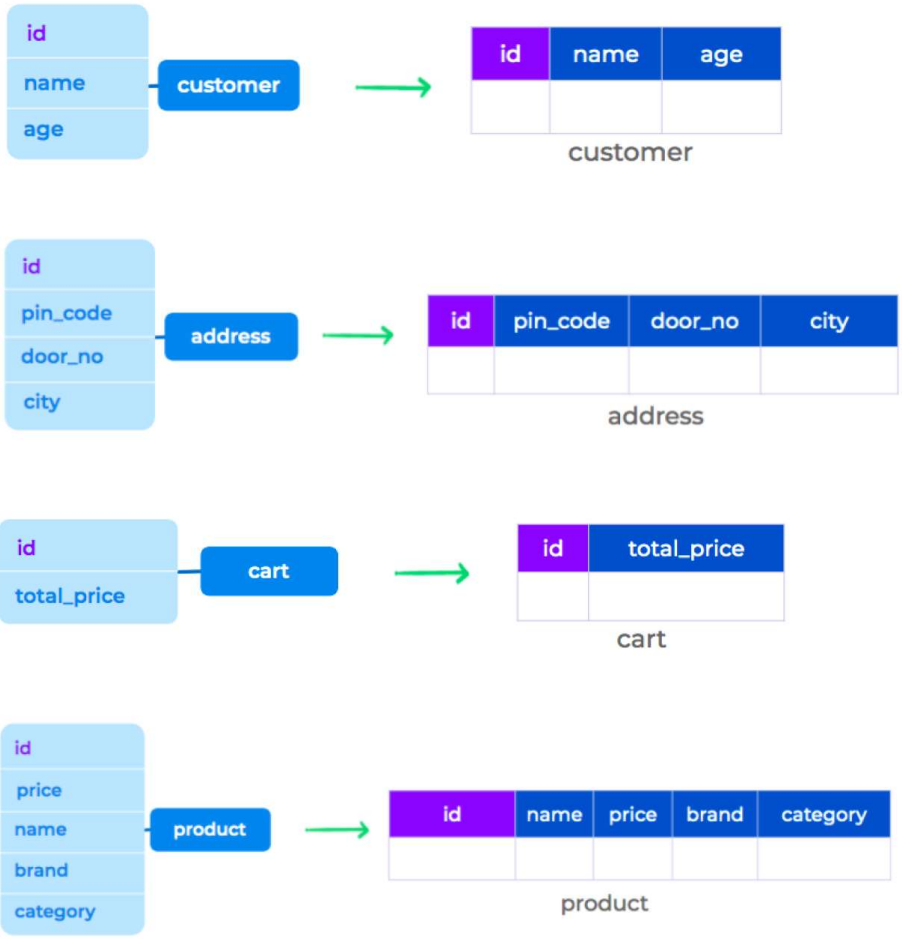
- ***Customer*** has only one ***cart***. A ***cart*** belongs to only one ***customer***
- ***Customer*** can add products to ***cart***
- ***Cart*** contains multiple ***products***
- ***Customer*** can save multiple ***addresses*** in the application for further use like selecting delivery address



Entity Type to Table

Primary key: A minimal set of attributes (columns) in a table that uniquely identifies rows in a table.

In the following tables, ***all the ids are primary keys*** as they ***uniquely identify each row*** in the table.



Relationships

Relation Between Customer and Address - One to Many Relationship

- A customer can have multiple addresses.
- An address is related to only one customer.

We store the primary key of a customer in the address table to denote that the addresses are related to a particular customer.

This new column/s in the table that refer to the primary key of another table is called **Foreign Key**.

id	pin_code	door_no	...	customer_id
1001	517130	6-1	...	1
1002	615670	6-13	...	1

address

Here,

`customer_id` is the foreign key that stores `id` (primary key) of customers.

Relation Between Cart and Customer - One to One Relationship

- A customer has only one cart.
- A cart is related to only one customer.

This is similar to one-to-many relationship. But, we need to ensure that ***only one cart is associated to a customer***

id	total_price	customer_id
1	1200	1
2	500	2

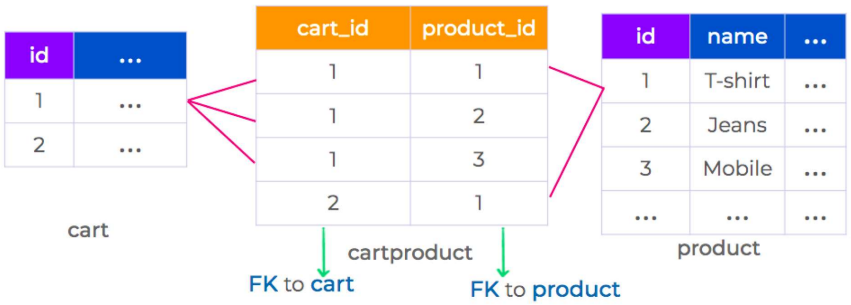
FK

cart

Relation Between Cart and Products - Many to Many Relationship

- A cart can have many products.
- A product can be in many carts.

Here, we cannot store either the primary key of a product in the cart table or vice versa.
To store the relationship between the cart and product tables, we use a **Junction Table**.



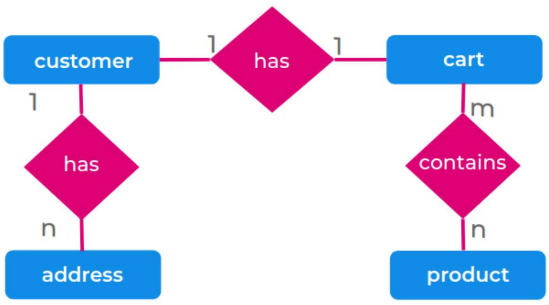
Note

We store the properties of a the relationship in the junction table. For example, quantity of each product in the cart should be stored in the junction table `cart_product`

E-commerce Usecase: ER Model to Relational Database

Following ER model is represented as the below tables in the relational database.

ER Model



Relational Database

id	name	age

customer

id	pin_code	door_no	city	customer_id

address

id	total_price	customer_id

cart

id	name	price	brand	category

product

id	cart_id	product_id	quantity

cartproduct

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