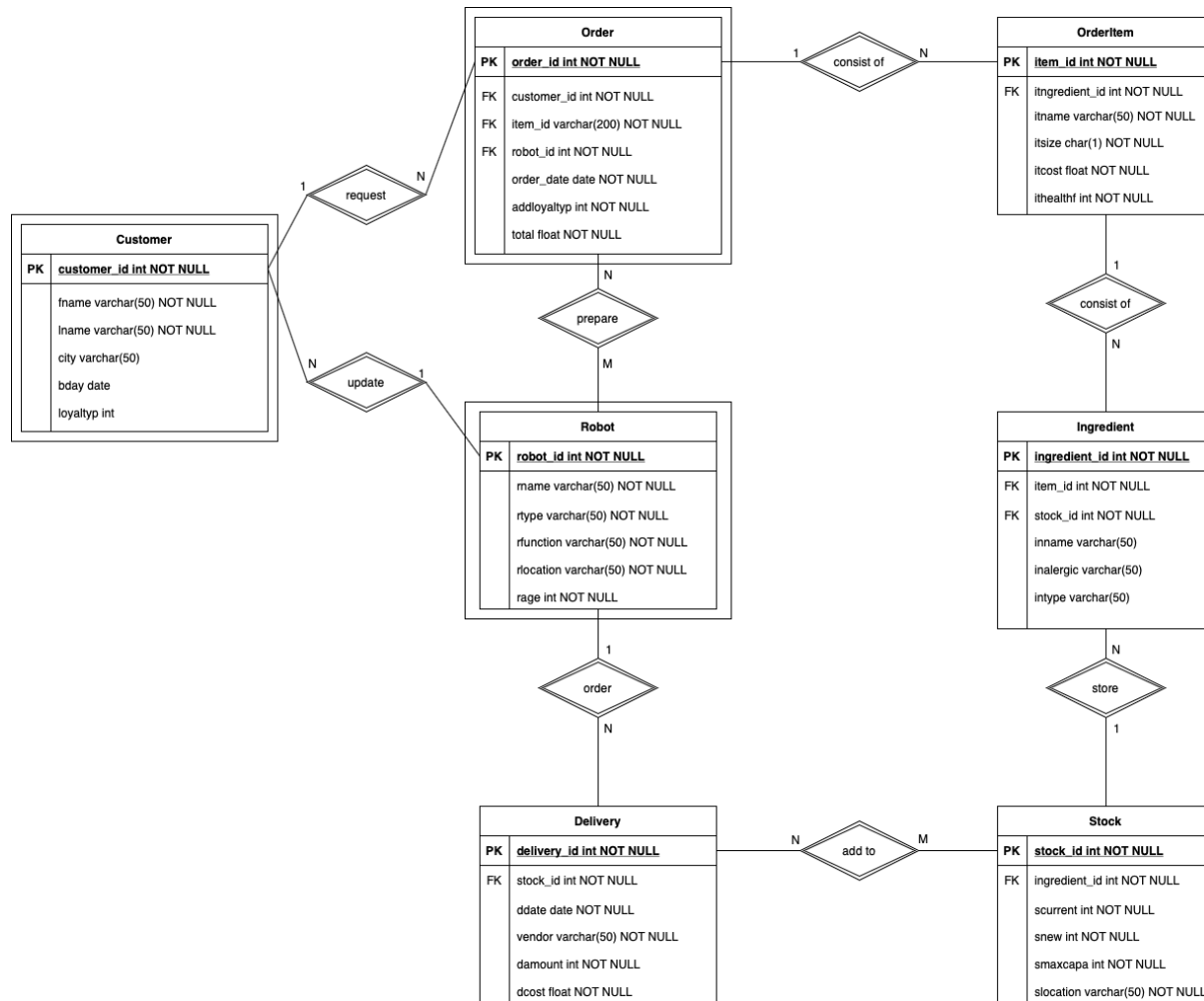


Chapter 1: Model



Chapter 2: Entities & Relationships

2.1. Customer

2.1.1. Meaning and key

The customer is the person who defines the attributes of the order and receives it. Every customer has its own primary key which is his or her id.

2.1.2. Relation and cardinality

One customer can request n orders. Many customers are serviced by one robot.

2.1.3. Textual description

Customer(customer_id, fname, lname, city, bday, loyaltytyp)

PK: customer_id

2.2. Order

2.2.1. Meaning and key

The order describes the set of items ordered by a customer. The primary key of the order is a unique order_id value.

2.2.2. Relation and cardinality

Many orders may belong to one customer. Many order items belong to one order.

2.2.3. Textual description

Order(order_id, customer_id, item_id, robot_id, order_date, addloyaltytyp, total)

PK: order_id

FK: order_id ◊ customer_id

FK: order_id ◊ item_id

FK: order_id ◊ robot_id

2.3. Robot

2.3.1 Meaning and key

There are several robots fulfilling different cyperphysical tasks. The robot_id is the primary key for this instance.

2.3.2. Relation and cardinality

The interaction_manager, which is a robot, is the single point of contact to the customer. There are many robots working in parallel on many orders to process customer orders.

2.3.3. Textual description

Robot(robot_id, rname, rtype, rfunction, rlocation, rage)

PK: robot_id

2.4. Delivery

2.4.1 Meaning and key

In order to ensure a working supply chain, the robots automatically reorder stock units which are ingredients that flow into sellable items.

2.4.2. Relation and cardinality

The stock_manager which is a robot, orders many deliveries. Many deliveries refill many stocks of ingredients.

2.4.3. Textual description

Delivery(delivery_id, stock_id, ddate, vendor, damaount, dcost)

PK: delivery_id

FK: delivery_id \diamond stock_id

2.5. Stock

2.5.1 Meaning and key

Stock represents the possibility to store ingredients which were gained through deliveries. The primary key is the stock_id with a foreign key from the ingredient entity.

2.5.2. Relation and cardinality

Many deliveries are associated with many stocks. There is one stock object related to many ingredient objects.

2.5.3. Textual description

Stock(stock_id, ingredient_id, scurrent, snew, smaxcapa, slocation)

PK: stock_id

FK: stock_id \diamond ingredient_id

2.6. Ingredient

2.6.1 Meaning and key

Ingredients such as potatoes or coca_cola are the very core of purchased raw material which is transformed into food that is represented as order items. The primary key of an ingredient is the ingredient_id.

2.6.2. Relation and cardinality

Many ingrediencies are stored as one stock item. One order item consists of many ingredients.

2.6.3. Textual description

Ingredient(ingredient_id, inname, incal, inalergic, incolor, intype)

PK: ingredient_id

FK: ingredient_id \diamond item_id

FK: ingredient_id \diamond stock_id

2.7. Order Item

2.7.1 Meaning and key

An order item is a sellable beverage or food product which was produced by the robot as the robot transforms ingredients into order items.

2.7.2. Relation and cardinality

One order item consists of many ingredients. Many order items are part of one order.

2.7.3. Textual description

OrderItem(item_id, ingredient_id, itname, itsize, itcost, ithealthf)

PK: item_id

FK: item_id \diamond ingredient_id

Chapter 3: Examples

Customer					
customer_id	fname	lname	city	bday	loyaltyp
1094	Heidi	Horten	Vienna	01.05.33	3802
43	Mohammed	Abdulla	Istanbu	15.02.89	34
74	Piere	La Croissant	Paris	09.08.99	255
271	Walter	Müller	Berlin	27.09.79	38
92	Ying	Su	Hong Kong	29.11.96	288

Order						
order_id	customer_id	item_id	robot_id	order_date	addloyaltyp	total
9251	1094	4	1	24.03.21	1	12,5
9252	43	2	2	24.03.21	2	22,3
9253	74	3	3	24.03.21	4	45,8
9254	271	9	4	24.03.21	0	9,6
9255	92	13	5	24.03.21	0	6,6

Robot					
robot_id	rname	rtype	rfunction	rlocation	rage
1	Joe	interaction_manager	customer kommunikation	6182:1294	2
2	Sandra	stock_manager	ordering	5762:3921	2
3	Barney	burger_chef	produce burger	3123:5821	1
4	Alice	drink_mixer	produce baverage	3789:7241	1

5	Bob	fries_expert	produce fries	6256:8962	1
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Delivery					
delivery_id	stock_id	ddate	vendor	damount	dcost
1254	23	24.03.21	PotatoFarmer	25	25
1256	21	24.03.21	WholeFarmer	3	6
1232	6	24.03.21	DrinksDirect	20	10
1212	33	23.03.21	DrinksDirect	40	20
1093	2	21.03.21	WholeFarmer	55	6

Stock					
stock_id	ingredient_id	scurrent	snew	smaxcapa	slocation
23	23	23	25	150	9182:9294
21	5	82	90	150	9762:9921
6	1	14	20	80	9123:9821
33	3	21	34	60	9789:9241
2	8	51	58	200	9256:9962

Ingredient					
ingredient_id	item_id	stock_id	inname	innalergic	intype
3	4	23	sparkwater	n	meat
5	2	21	potato	n	veggis
5	3	6	potato	n	veggis
3	9	33	sparkwater	n	drink
8	13	2	tomato	n	veggies

OrderItem					
item_id	ingredient_id	itname	itsize	itcost	ithealthf
4	23	cola	m	2,5	c
2	5	fries	l	3,3	c
3	5	wedges	s	3,3	c
9	3	soda	m	1,8	a
13	8	tomatos	u	0,5	a