DB Assignment 3
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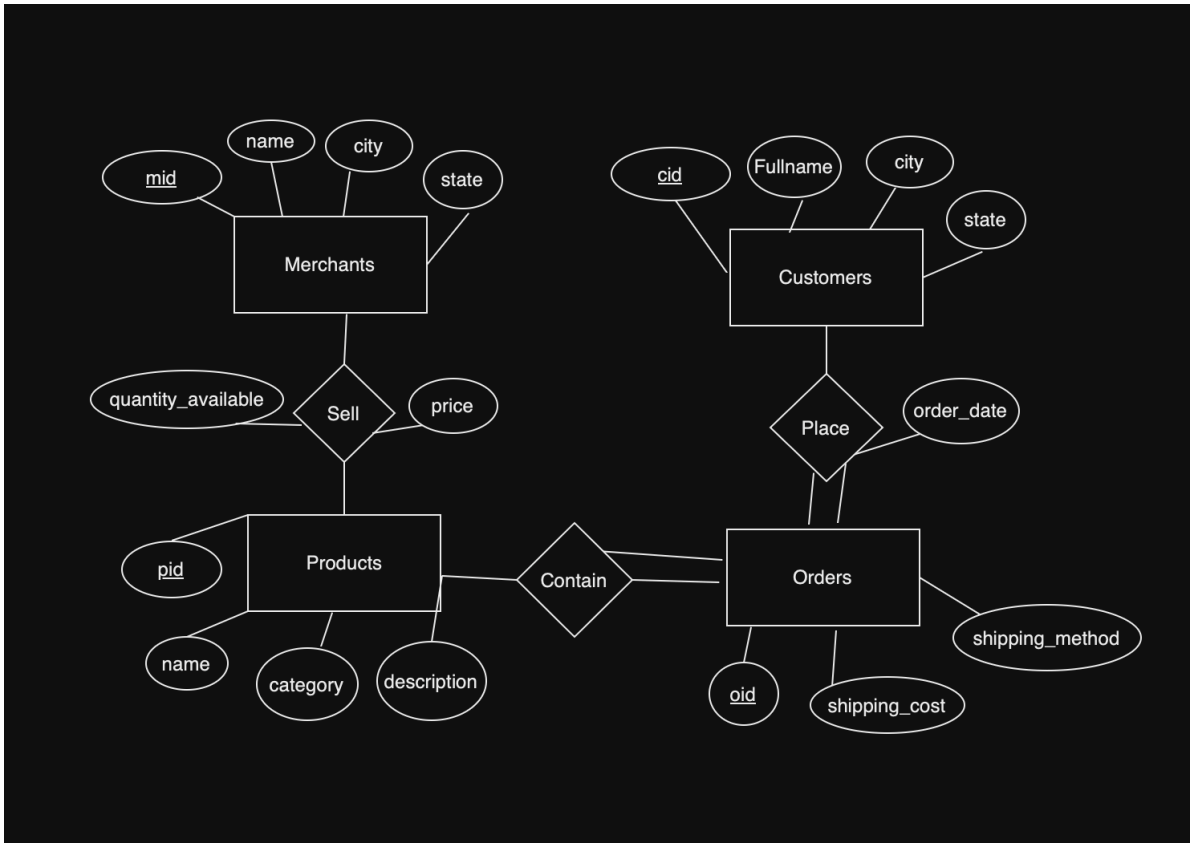
9/29/24

The queries below reflect the following entities and relationships

- **merchants**(mid, name, city, state)
- ***products***(pid, name, category, description)
- ***sell***(mid, pid, price, quantity_available)
- **orders**(oid, shipping_method, shipping_cost)
- **contain**(oid, pid)
- **customers**(cid, fullname, city, state)
- **place**(cid, oid, order_date)

ER Diagram 1.0



SQL queries

1. **List names and sellers of products that are no longer available (quantity=0)**
   a. For this query I did a simple inner join between sell and products and sell and merchants to select which the products were sold by which companies. Then I did a where statement to find which ones had 0 for their quantity_available.
   b. Query & Results

```
-- ----------------------------------
-- Query 1: List names and sellers of products that are
-- no longer available (quantity=0)
-- ----------------------------------
select p.name as product, m.name as merchant, quantity_available
from products p
    inner join sell s on p.pid = s.pid
    inner join merchants m on s.mid = m.mid
where s.quantity_available = 0;
```

product	merchant	quantity_available
Router	Acer	0
Network Card	Acer	0
Printer	Apple	0
Router	Apple	0
Router	HP	0
Super Drive	HP	0
Router	Dell	0
Ethernet Adapter	Lenovo	0

2. **List names and descriptions of products that are not sold.**
   a. For this query I joined the contain and product tables together and implemented a count on product ids in the contain table to track the number of times a product was included in an order. Then after grouping the results by product id I used ‘having’ to only capture the desired results for products that had a count of 0. Meaning no orders contained these products.
   b. **Query & Results:**

```
-- ------------------------------------
-- Query 2: List names and descriptions of products that are not sold.
-- ------------------------------------
select p.pid, p.name, p.description, count(c.pid)
from products p
    left outer join contain c on p.pid = c.pid
group by p.pid
having count(c.pid) = 0;
```

pid	name	description	count(c.pi...
31	Super Drive	External CD/DVD/RW	0
32	Super Drive	UInternal CD/DVD/RW	0

3. **How many customers bought SATA drives but not any routers?**
    a. For this query I assumed the prompt was asked for super drives. I first tried to compute the query using except, but realized my MySQL didn't support it and would not show me any results. I then tried to adapt my where statement. But I ran into some issues where it would still not compute.
    b. **Query & Results:**

```
-- -----------------------------------
-- Query 3: How many customers bought SATA drives but not any routers?
-- -----------------------------------
-- Version 1 with except

select count(distinct cus.cid)
from customers cus
    join place pl on cus.cid = pl.cid
    join orders o on pl.oid = o.oid
    join contain c on o.oid = c.oid
    join products p on c.pid = p.pid
where p.name = 'Super Drive'

except

select count(distinct cus.cid)
from customers cus
    join place pl on cus.cid = pl.cid
    join orders o on pl.oid = o.oid
    join contain c on o.oid = c.oid
    join products p on c.pid = p.pid
where p.name = 'Router';
```

4. **HP has a 20% sale on all its Networking products.**
    a. To code this query I wanted to find all products that HP sells and list their original price and their new price with the 20% discount; which I calculated as 0.2 multiplied by current price and that result subtracted from the original price.
    b. **Query & Results:**

```
-- -----------------------------------
-- Query 4: HP has a 20% sale on all its Networking products.
-- -----------------------------------
select p.pid, p.name as Product, s.price as original_price, s.price-(s.price*0.20) as sale_price
from products p
    inner join sell s on p.pid = s.pid
    inner join merchants m on s.mid = m.mid
where m.name = 'HP'
order by p.pid;
```

pid	Product	original_pri...	sale_price
3	Printer	1409	1127.20
4	Super Drive	343	274.40
5	Hard Drive	168	134.40
8	Router	1034	827.20
9	Monitor	991	792.80
10	Network Card	1155	924.00
12	Network Card	345	276.00
13	Network Card	262	209.60
14	Monitor	822	657.60
15	Printer	358	286.40
16	Ethernet Ad...	1260	1008.00
18	Router	206	164.80
19	Router	1475	1180.00
20	Router	552	441.60
21	Super Drive	659	527.20
23	Router	101	80.80
26	Printer	856	684.80
28	Network Card	1179	943.20
29	Hard Drive	940	752.00
30	Super Drive	281	224.80

5. **What did Uriel Whitney order from Acer? (make sure to at least retrieve product names and prices).**
   a. To find all the products Uriel ordered from Acer I did several inner joins to connect orders to Customers through Place and Contain and Orders and Merchants through Sell. I then used a Where statement to only select the product ID, name, and price where the condition was Uriel as the customer and Acer as the merchant. I could have also used an insertion here. Additionally, the first time I ran the query I noticed I got a large amount of orders. I then went back and added Distinct in front of product ID in case Uriel made multiple orders of the same product.
   b. **Query & Results:**

```
-- ----------------------------------
-- Query 5: What did Uriel Whitney order from Acer? (
-- make sure to at least retrieve product names and prices).
-- ----------------------------------
select p.name, s.price
from products p
    inner join sell s on p.pid=s.pid
    inner join merchants m on s.mid=m.mid
    inner join contain con on p.pid=con.pid
    inner join orders o on con.oid=o.oid
    inner join place pl on o.oid=pl.oid
    inner join customers cus on pl.cid=cus.cid
where cus.fullname = 'Uriel Whitney' AND m.name = 'Acer';
```

pid	name	price
1	Hard Drive	837
2	Monitor	1103
3	Printer	311
5	Hard Drive	334
7	Super Drive	1135
8	Router	521
10	Network Card	837
11	Super Drive	1124
13	Network Card	609
14	Monitor	1435
15	Printer	836
16	Ethernet Ad…	447
18	Router	1257
19	Router	781
20	Router	946
21	Super Drive	356
22	Super Drive	1016
23	Router	394
26	Printer	1345
27	Network Card	405
28	Network Card	130
29	Hard Drive	1151
30	Super Drive	672