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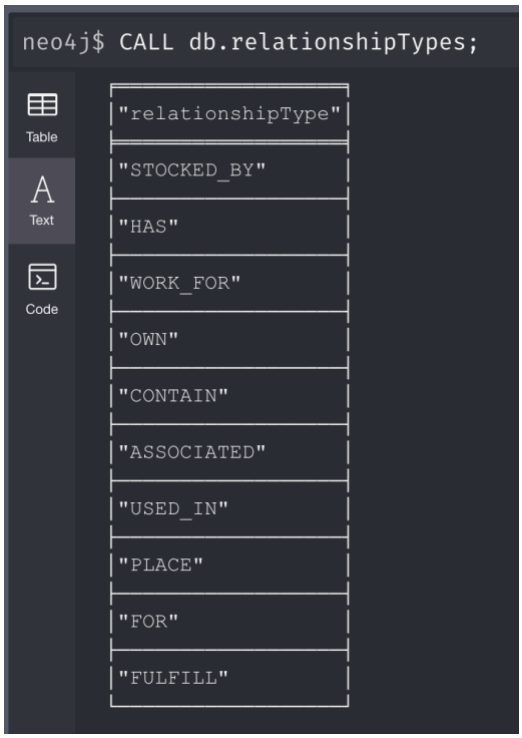
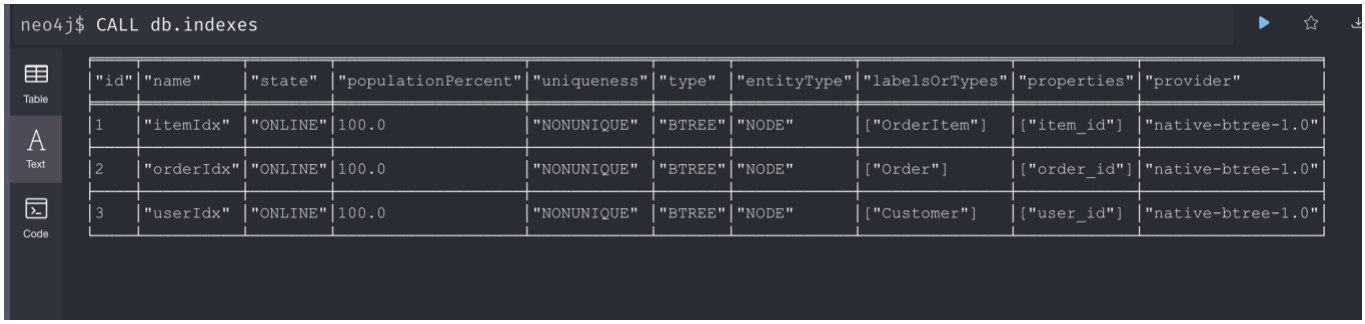
Date:5/20/21

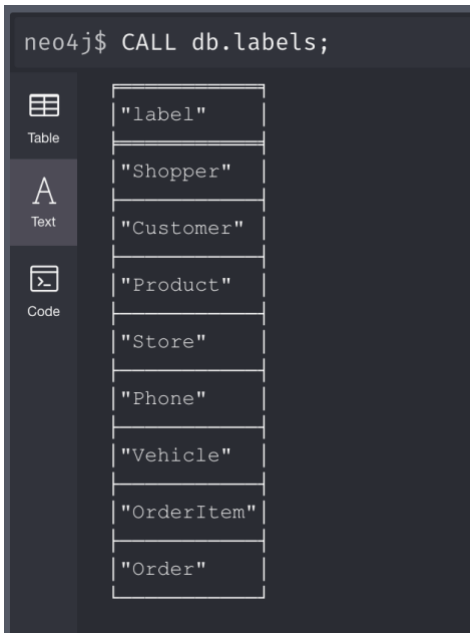
Q1:
A:



B:



C:

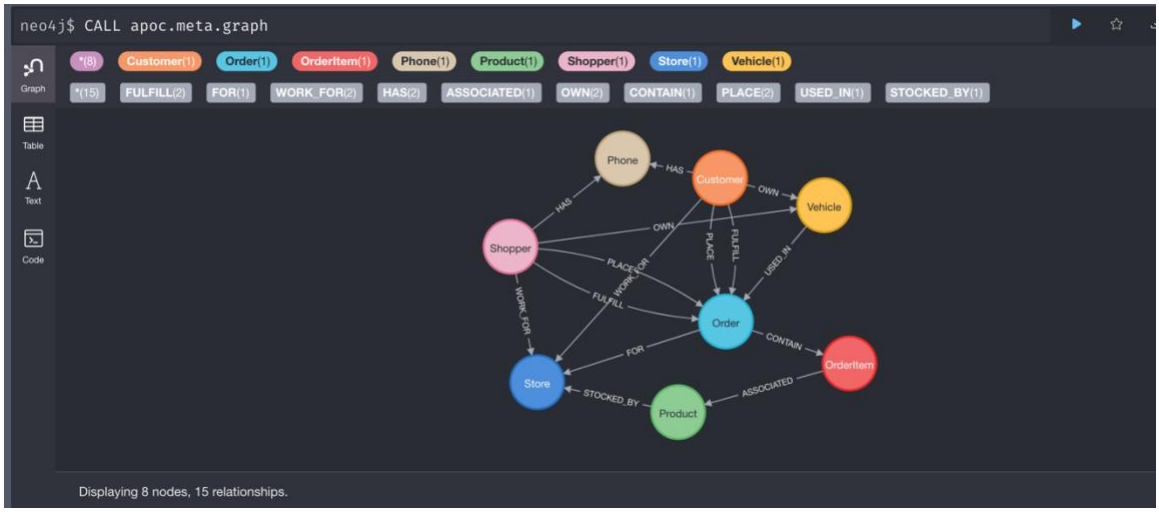


Q2:

Order node have Work For, For, Fulfill, Contain, Place, Used in, Contain, and Own. The labels that this node connected to are shopper, customer, store, orderItem, and vehicle.

Directions of each relationship:

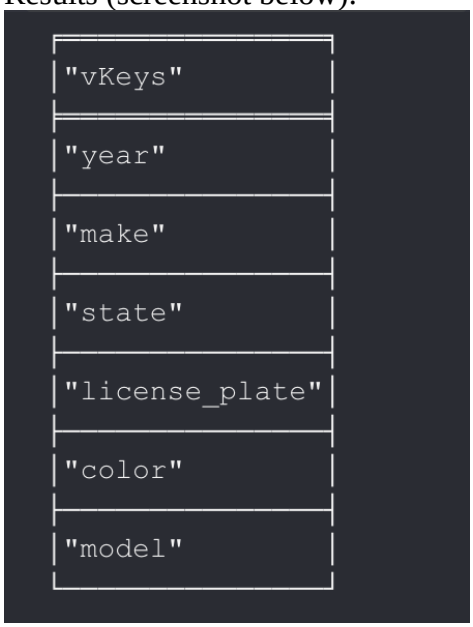
Name of relationship	Directions
Contain	(Order) → (OrderItem)
For	(Order) → (Store)
Fulfill	(Order) ← (Shopper)
Place	(Order) ← (Customer)
Used_In	(Order) ← (Vehicle)



Q3:
Query:

```
MATCH (v:Vehicle)
WITH v LIMIT 1000
UNWIND (keys(v)) AS vKeys
RETURN DISTINCT vKeys
```

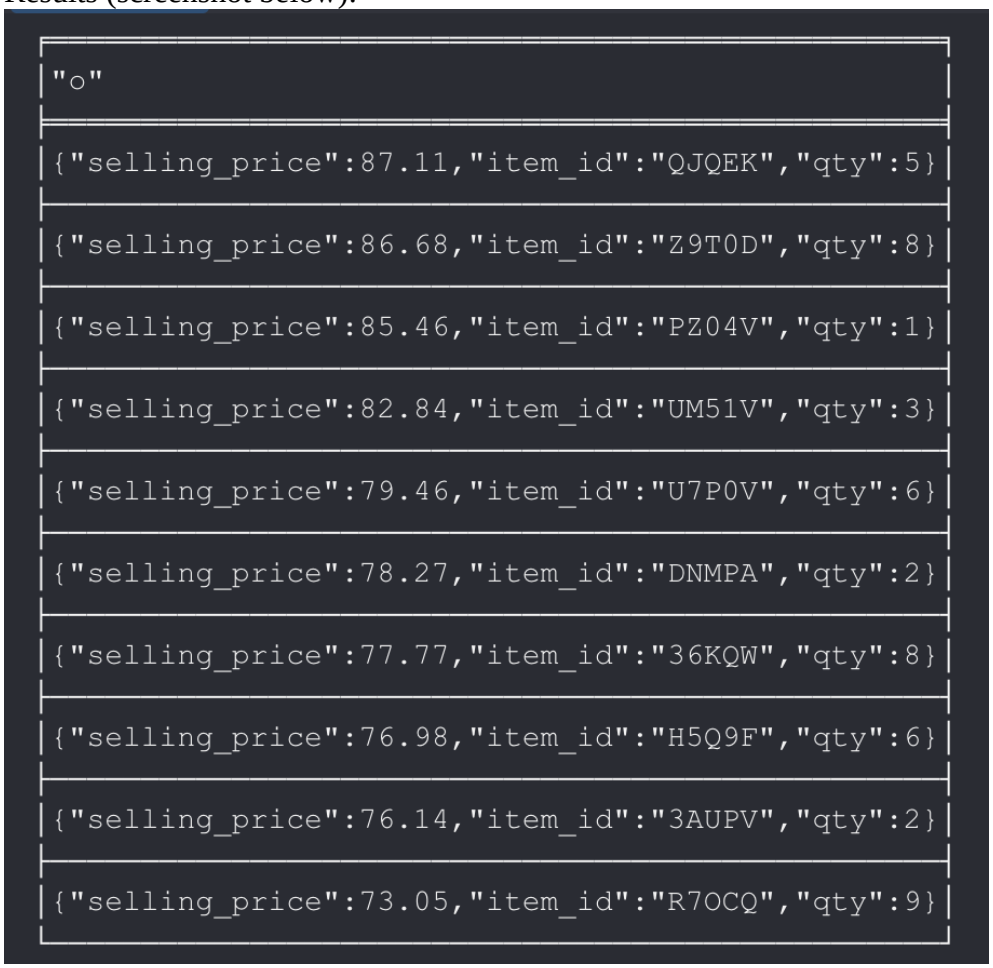
Results (screenshot below):



Q4 A:
Query:

```
MATCH (o: OrderItem)
RETURN o
ORDER BY o.selling_price DESC
LIMIT 10
```

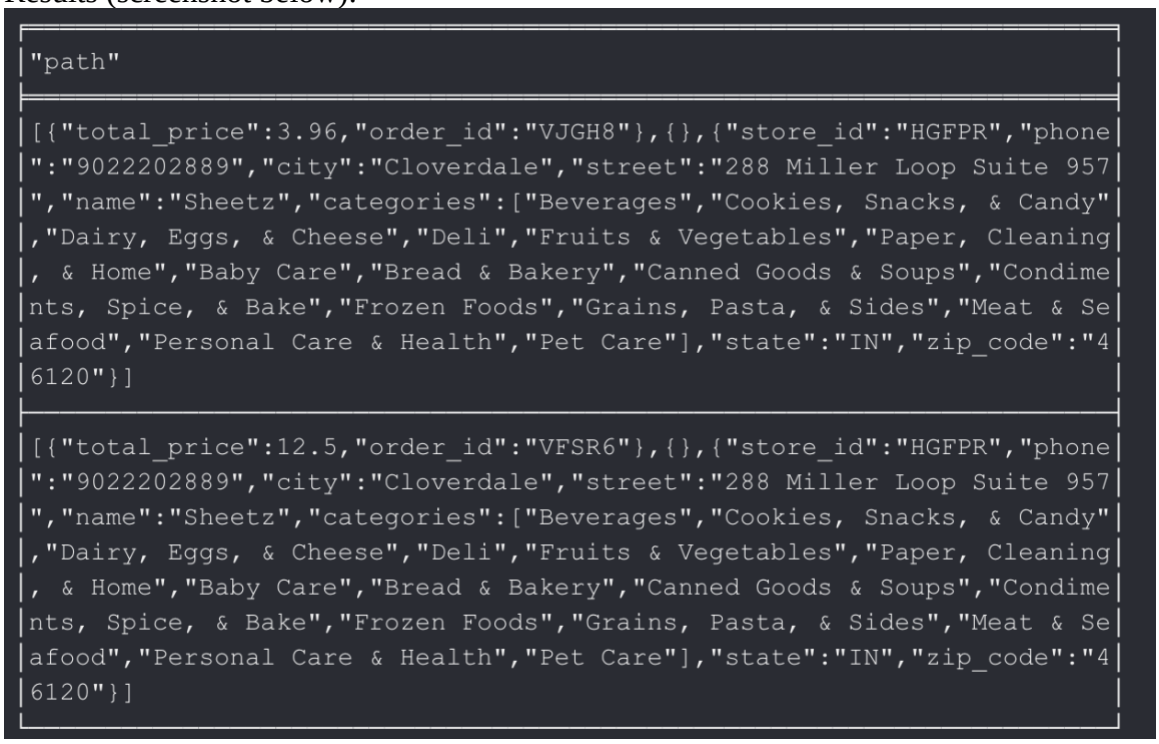
Results (screenshot below):



Q4 B:
Query:

```
MATCH path = ()-[:FOR]->(:Store {name: 'Sheetz'})
RETURN path
LIMIT 2
```

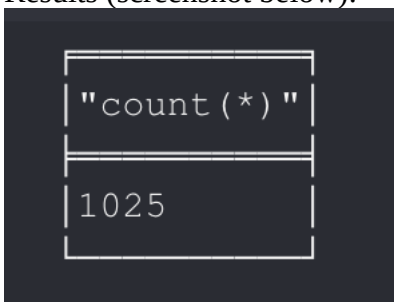
Results (screenshot below):



Q4 C:
Query:

```
MATCH (c:Customer)
WHERE NOT EXISTS((c)-[:PLACE]->(:Order))
RETURN count(*)
```

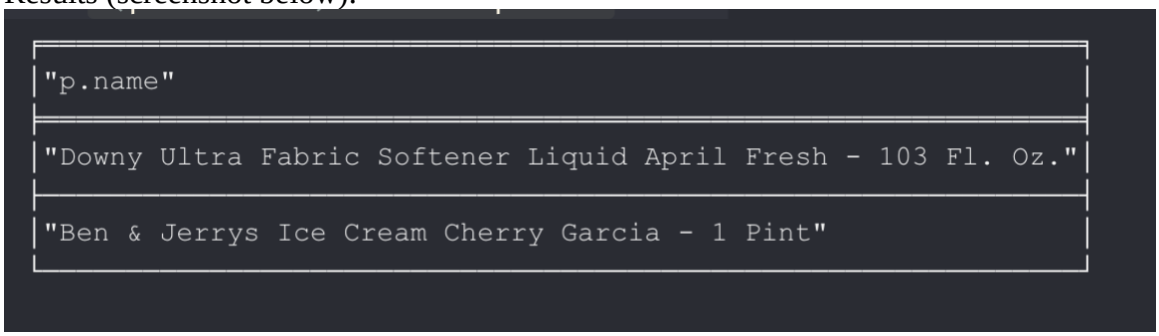
Results (screenshot below):



Q4 D:
Query:

```
MATCH (o:Order {order_id: 'U7GWS'})-[:CONTAIN]->(o1:OrderItem)-
[:ASSOCIATED]->(p:Product)
RETURN p.name
```

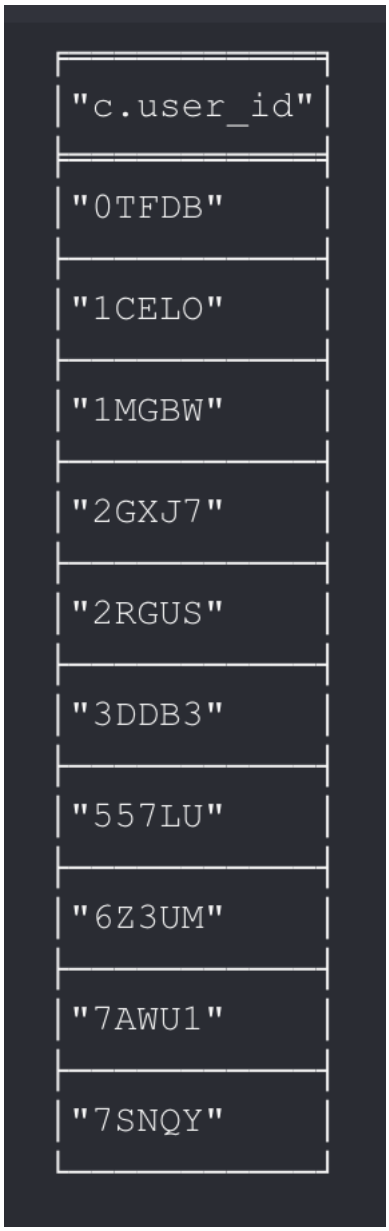
Results (screenshot below):



Q4 E:
Query:

```
Match (c:Customer)-[:PLACE]->(o:Order)-[:FOR]->(s:Store)
WHERE size((:Order)-[:FOR]->(s)) < 10
RETURN c.user_id
ORDER BY c.user_id
LIMIT 10
```

Results (screenshot below):



"c.user_id"
"0TFDB"
"1CELO"
"1MGBW"
"2GXJ7"
"2RGUS"
"3DDB3"
"557LU"
"6Z3UM"
"7AWU1"
"7SNQY"

Q4 F:
Query:

```
Match (s:Shopper)
where s.capacity > 4 and size((s)-[:FULFILL]->(:Order)) > 5
return s.user_id, s.capacity, size((s)-[:FULFILL]->(:Order)) as Order_count
order by s.user_id
limit 10
```

Results (screenshot below):

"s.user_id"	"s.capacity"	"Order_count"
"0FS6I"	5	34
"1SX1C"	5	6
"1TMXQ"	5	51
"37JFY"	5	19
"3CQPI"	5	24
"6IKAH"	5	7
"7G30P"	5	10
"8CVTK"	5	8
"8I2TB"	5	26
"8PE3A"	5	14

Q4 G:
Query:

```
match (c1:Customer)-[:PLACE]-(:Order)-[:FOR]->(s:Store {store_id: '2TM62'})<-
[:FOR]-(:Order)-[:PLACE]-(c2:Customer)
WHERE size((c1)-[:PLACE]-(:Order)-[:FOR]->(s)) >= 2 and
size((c2)-[:PLACE]-(:Order)-[:FOR]->(s)) >= 2 and
id(c1) > id(c2)
return distinct c1.first_name, c2.first_name
Order by c1.first_name asc, c2.first_name asc
limit 10
```

Results (screenshot below):

"c1.first_name"	"c2.first_name"
"Lauren"	"Paul"

Q4 H:
Query:

```
match (s:Shopper)-[:FULFILL]-(:Order)-[:PLACE]-(c:Customer) with s, c
match (c)-[:FULFILL]-(:Order)-[:PLACE]-(s)
where id(s) > id(c)
return distinct s.first_name, c.first_name
Order by s.first_name asc, c.first_name asc
limit 10
```

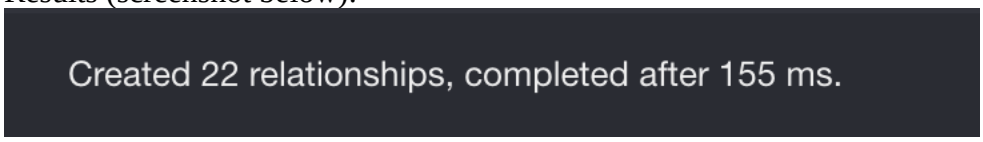
Results (screenshot below):

"s.first_name"	"c.first_name"
"Bailey"	"Colleen"
"Connor"	"Lis"
"Dav"	"Robert"
"Deborah"	"Tho"
"Jake"	"Timothy"
"Joseph"	"Sarah"
"Kim"	"Sarah"
"Mar"	"Zachary"
"Samuel"	"Gregory"
"Sarah"	"Anthony"

Q4 I:
Query:

```
match (s:Shopper)-[:FULFILL]-(:Order)-[:PLACE]-(c:Customer) with s, c
match (c)-[:FULFILL]-(:Order)-[:PLACE]-(s)
where id(s) > id(c)
create (s)-[:SERVE]->(c), (c)-[:SERVE]->(s)
```

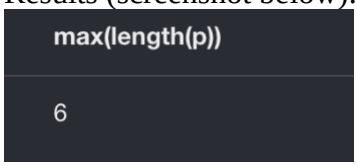
Results (screenshot below):



Q4 J:
Query:

```
match (n) where n:Customer and n:Shopper with n
match (s:Shopper {user_id:'SVT7J'}),
p = shortestpath((s)-[*1..10]-(n))
where s<>n return max(length(p))
```

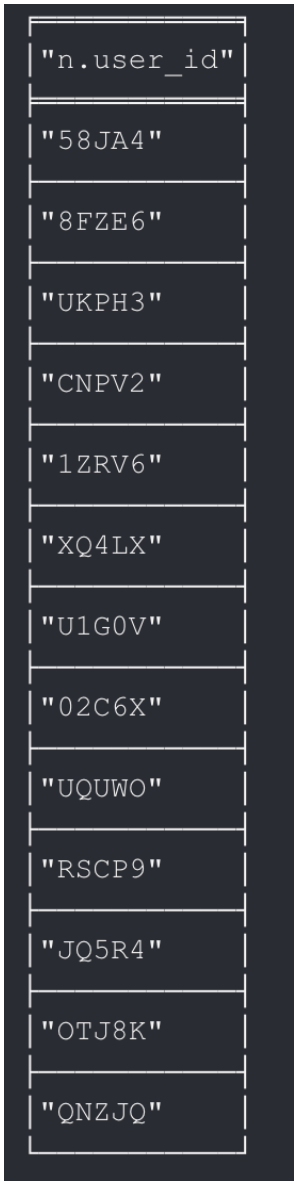
Results (screenshot below):



Q4 K:
Query:

```
match (n) where n:Customer and n:Shopper with n
match p1 = (s:Shopper {user_id:'SVT7J'})-[r*2]-(n)
return distinct n.user_id
```

Results (screenshot below):



"n.user_id"
"58JA4"
"8FZE6"
"UKPH3"
"CNPV2"
"1ZRV6"
"XQ4LX"
"U1G0V"
"02C6X"
"UQUWO"
"RSCP9"
"JQ5R4"
"OTJ8K"
"QNZJQ"