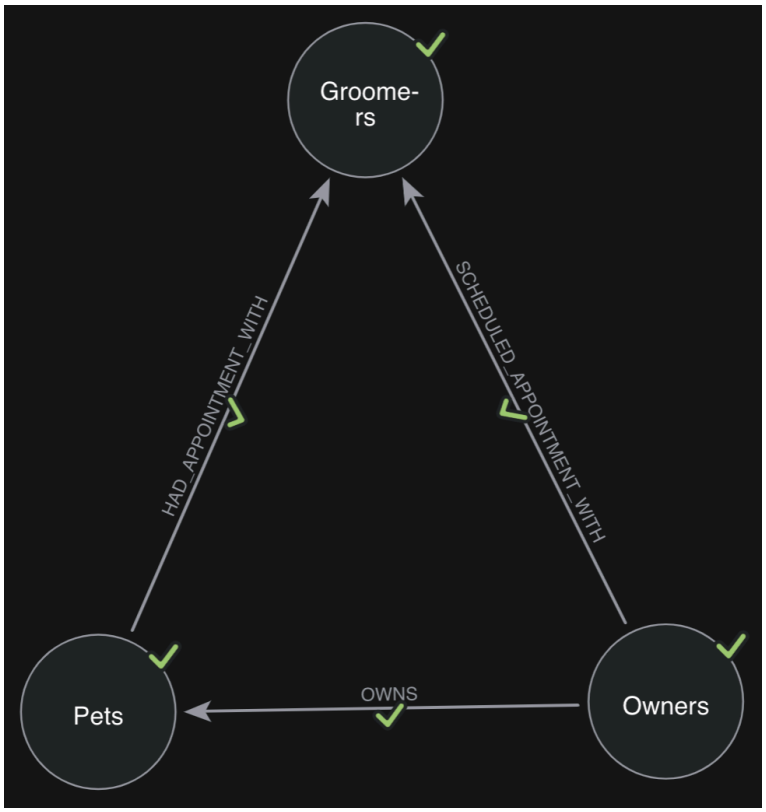
Viveka Agrawal
CS224P
HW 4

Set-up question

After creating the graph, click on “Import Data”. It will give an error about missing an id for a node, you should understand the structure of the graph and solve the issue. In your final report, explain how you solved the problem.

In the relationship “owns” between Owners and Pets, I fixed the error by giving the Owners node the id column of owner_id and the Pets node the id column of pet_id, both from the table zotpets_pets.csv.
In the relationship “had appointment with” between Pets and Groomers, I fixed the error by giving the Pets node the id column of pet_id and the Groomers node the id column of groomer_id, both from the table zotpets_appointments.csv.
In the relationship “scheduled appointment with” between Owners and Groomers, I fixed the error by giving the Owners node the id column of pet_owner_id and the Groomers node the id column of groomer_id, both from the table zotpets_appointments.csv.



Question 1

```
MATCH (o:Owner)
RETURN o.name, o.email, o.join_date
ORDER BY o.join_date ASC
LIMIT 1;
```

```
1 MATCH (o:Owners)
2 RETURN o.name, o.email, o.join_date
3 ORDER BY o.join_date ASC
4 LIMIT 1;
```

Table RAW

o.name	o.email	o.join_date
"Mariah Dougherty"	"monica28@example.com"	2020-10-27T00:00:00Z

Question 2

```
MATCH (p:Pets)-[:HAD_APPOINTMENT_WITH]->(g:Groomers)
RETURN g.name, COUNT(DISTINCT p) as pet_count_dist
ORDER BY pet_count_dist DESC
LIMIT 1;
```

```
1 MATCH (p:Pets)-[:HAD_APPOINTMENT_WITH]->(g:Groomers)
2 RETURN g.name, COUNT(DISTINCT p) as pet_count_dist
3 ORDER BY pet_count_dist DESC
4 LIMIT 1;
```

Table RAW

g.name	pet_count_dist
"Ryan Gonzales"	54

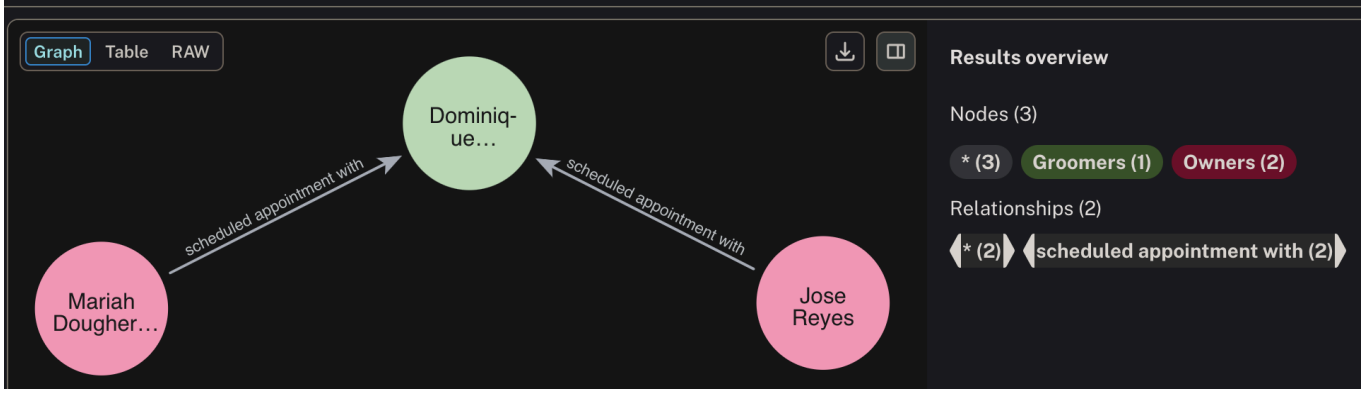
Question 3

```
MATCH (o:Owners)-[:OWNS]->(p:Pets)
RETURN o.name, COUNT(p) as pet_count
ORDER BY pet_count DESC
LIMIT 1;
```

Question 4

```
MATCH (earliest_client:Owners)
WITH earliest_client
ORDER BY earliest_client.join_date ASC
LIMIT 1

MATCH (influential_client:Owners)-[:OWNS]->(p:Pets)
WITH earliest_client, influential_client, COUNT(p) as pet_count
ORDER BY pet_count DESC
LIMIT 1

MATCH shortest_path = shortestPath((earliest_client)-[*..10]-(influential_client))
RETURN shortest_path;
```

```
MATCH (earliest_client:Owners)
WITH earliest_client
ORDER BY earliest_client.join_date ASC
LIMIT 1

MATCH (influential_client:Owners)-[:OWNS]->(p:Pets)
WITH earliest_client, influential_client, COUNT(p) as pet_count
ORDER BY pet_count DESC
LIMIT 1

MATCH shortest_path = shortestPath((earliest_client)-[*..10]-(influential_client))
RETURN shortest_path;
```



Question 5

MATCH (pet:Pets)-[:HAD_APPOINTMENT_WITH]->(groomer:Groomers)
WITH groomer, COUNT(DISTINCT pet) as appointment_count
ORDER BY appointment_count DESC
LIMIT 1

WITH groomer as most_popular_groomer
MATCH (shared_pet:Pets)-[:HAD_APPOINTMENT_WITH]->(most_popular_groomer)

MATCH (shared_pet)-[:HAD_APPOINTMENT_WITH]->(secondary_groomer:Groomers)
WHERE secondary_groomer <> most_popular_groomer

RETURN secondary_groomer.name, COUNT(DISTINCT shared_pet) as shared_pet_count
ORDER BY shared_pet_count DESC;

```
MATCH (pet:Pets)-[:HAD_APPOINTMENT_WITH]->(groomer:Groomers)
WITH groomer, COUNT(DISTINCT pet) as appointment_count
ORDER BY appointment_count DESC
LIMIT 1

WITH groomer as most_popular_groomer
MATCH (shared_pet:Pets)-[:HAD_APPOINTMENT_WITH]->(most_popular_groomer)

MATCH (shared_pet)-[:HAD_APPOINTMENT_WITH]->(secondary_groomer:Groomers)
WHERE secondary_groomer <> most_popular_groomer

RETURN secondary_groomer.name, COUNT(DISTINCT shared_pet) as shared_pet_count
ORDER BY shared_pet_count DESC;
```

	secondary_groomer.name	shared_pet_count
1	"Shawn Weaver"	7
2	"Renee Hamilton"	6
3	"Paul Gomez"	5
4	"Christina Garcia"	5
5	"Michael Nelson"	5
6	"Julie Long"	5
7	"Julie Williams"	4
8	"Richard Hudson"	4
9	"Noah Shea"	4
10	"Andrea Martin"	4

11	"Lisa Meyer"	4
12	"Anthony Castro"	4
13	"Elizabeth Watkins"	4
14	"Courtney Boyer"	3
15	"Christopher Martinez"	3
16	"Mark Pollard"	3
17	"Brandon Martinez Jr."	3
18	"Justin Savage"	3
19	"Kimberly Miranda"	3
20	"Michael Little"	3
21	"Stacy Thomas"	3

22	"Catherine Wright"	3
23	"Sean Delacruz"	3
24	"Jason Thornton"	3
25	"Mark Howard"	3
26	"Jessica King"	2
27	"Karen Sherman"	2
28	"Sarah Davis"	2
29	"Marilyn Kennedy"	2
30	"Lorraine Adams"	2
31	"Rachel Wallace"	2
32	"Lisa Carr"	2

33	"Patrick Smith"	2
34	"Sharon Gray"	2
35	"Todd Kennedy"	2
36	"Charles Henson"	1
37	"Dr. Gabrielle Clark"	1
38	"Bradley Larson"	1
39	"Kelly Hayes"	1
40	"Lauren Noble"	1
41	"Dominique Campbell"	1
42	"Joseph Smith"	1
43	"Patrick Whitaker"	1
44	"Paul Williams"	1
45	"Shannon Cohen"	1
46	"Michael Washington"	1
47	"Sarah Burke DDS"	1

Question 6:

```
MATCH (influential_client:Owners)-[:OWNS]->(p:Pets)
WITH influential_client, COUNT(p) as pet_count
ORDER BY pet_count DESC
LIMIT 1

MATCH (influential_client)-[:OWNS]->(influential_client_pet:Pets)
MATCH (influential_client_pet)-[:HAD_APPOINTMENT_WITH]->(groomer:Groomers)
MATCH (other_pet:Pets)-[:HAD_APPOINTMENT_WITH]->(groomer)
MATCH (other_pet_owner:Owners)-[:OWNS]->(other_pet)

RETURN influential_client, influential_client_pet, groomer, other_pet, other_pet_owner;
```