

GRAPH DATABASES
BEIRUT MEETUP
VISITS **ALICANTE**

NEO4J INTRODUCCIÓN A LAS BASES DE DATOS ORIENTADAS A GRAFOS

PONENTE

KINANE DOMLOJE

6:30 P.M

MARTES 14 de NOVIEMBRE

ULAB

PLAZA DE SAN CRISTOBAL, 14.

ULab
LOCAL MEETING POINT

VINELAB

neo4j



Abed Halawi

Tech Lead - Vinelab

@mulkave




Kinane Domloje

Data Developer - Vinelab

@kinaneD




Graph Databases Beirut

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[Beirut, Lebanon](#)
Founded Jan 26, 2016

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Organizers:

 [Neo4j](#), [Abad Halawi](#), [Kinane](#)

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We're about:
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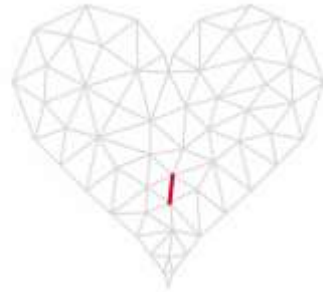
VINELAB

WE EXPLOIT THE INTERSECTION OF
TECHNOLOGY, MEDIA & CELEBRITY
AMPLIFICATION

A B O U T U S



WE DELIVER CELEBRITY AUDIENCE TO BRANDS



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- [:LOVES] ->

Neo4j

build [passing](#)

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PHP OGM for Neo4j

Quick Reference

- [Installation](#)
- [Configuration](#)
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- [Edges](#)
- [Migration](#)
- [Schema](#)
- [Aggregates](#)
- [Only in Neo](#)
- [Things To Avoid](#)

By [Michael Hunger](#), Developer Relations | July 22, 2015

In response to your many requests, we're happy to announce our first *semi-official* (i.e. beta release) [Neo4j-Docker image](#).

It is *semi-official*, because it doesn't yet come with guarantees or official customer support and has not been as battle-tested as the rest of our product packaging. So expect the regular issues you might run into with any beta release.

First of all, I want to thank everyone in our community who already provided great Docker images for [Neo4j](#). We took inspiration from those first attempts when creating our own. Special thanks to [Abed Halawi](#), [Kenny Bastani](#), and [Ben Butler-Cole](#).

We're also grateful for the feedback that we already got in the discussion with these authors around the requirements and realisation of the image.

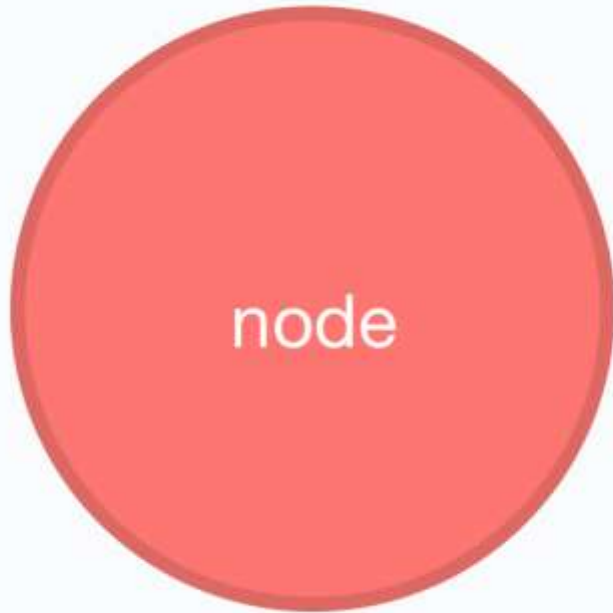
We made the recent versions available on [Docker-Hub](#) but you can also build it on your own from [our GitHub Repository](#).



- What is a Graph Database?
- Why use a Graph Database?
- Cypher Query Language
- Neo4j UI Walkthrough
- Relational vs. Graph Databases
- My Personal Journey with Graph Databases
- Best Practices in Data Modeling

What is a Graph Database?

: Person



```
{  
  id: 9928,  
  name: John Doe,  
  email: john@doe.me,  
  created_at: 03-06-1969  
}
```

What is a Graph?

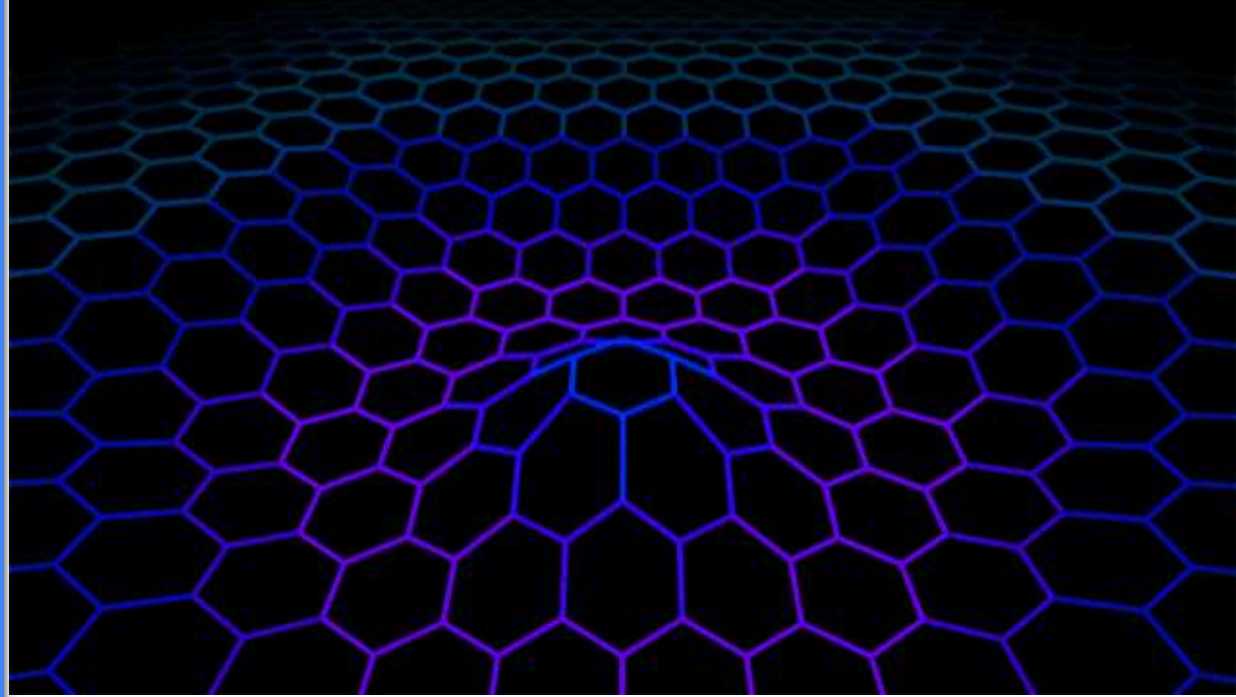


Why use a Graph
Database?

Flexibility

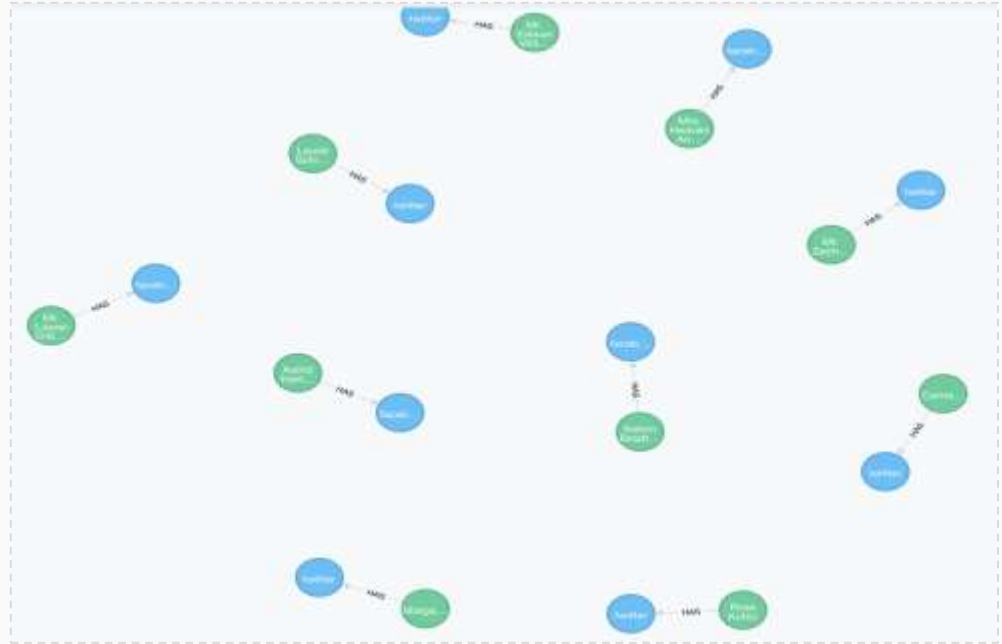
"All models are wrong but some are useful"

~ George Box



Schema-less Data Structures

Constraints



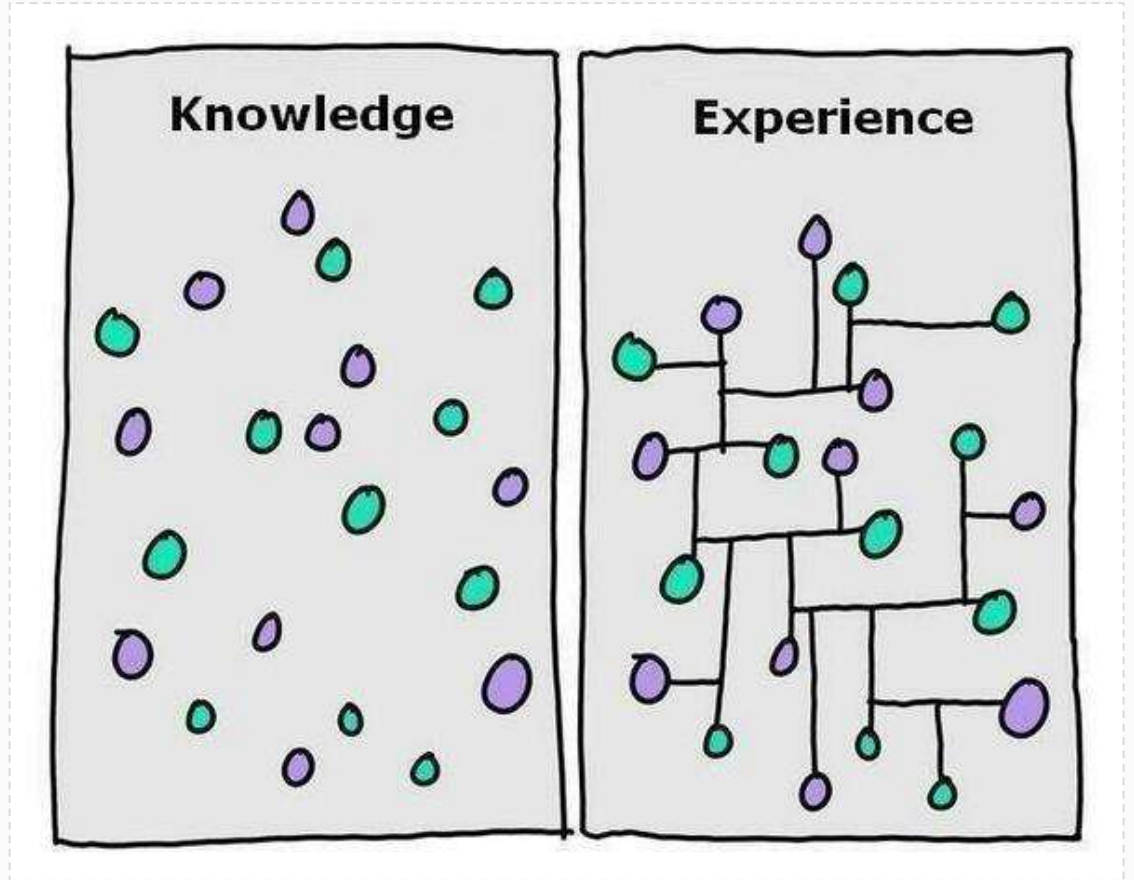
- Unique node properties
- Node property existence
- Relationship property existence
- Indexing

Performance



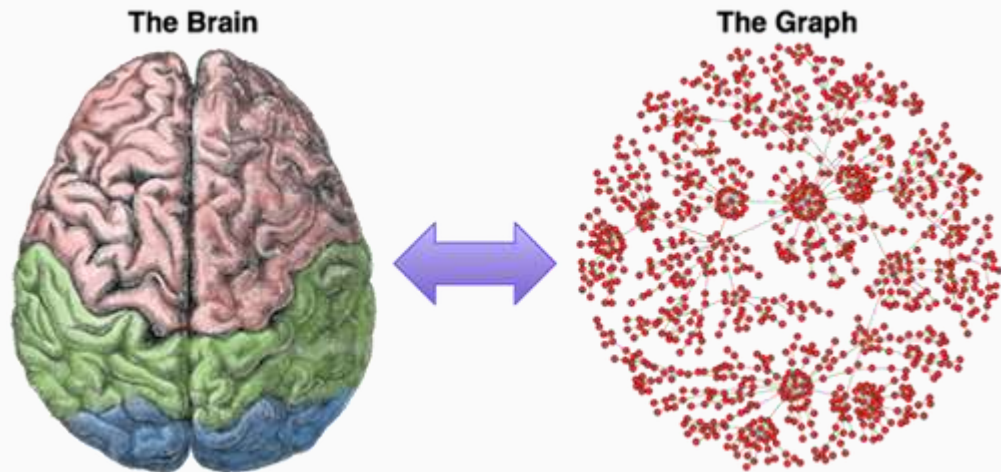
Creativity

Pleasant modelling and development experience.



What can you model with graph?

Anything, literally!



Cypher Query Language

Querying the graph database using Cypher

“Cypher is an expressive (yet compact) graph database query language”

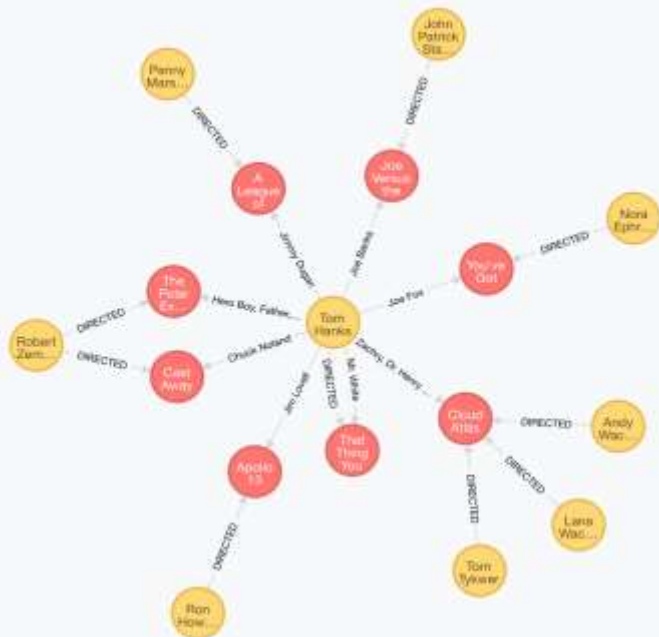
```
$ CREATE (:User { name: 'جان دو' })-[:FOLLOWS]->(:User { name: 'أليس' })
```



Cypher • MATCH-WHERE clause

The MATCH clause allows you to specify the patterns Neo4j will search for in the database.

```
$ MATCH (actor:Person)-[:ACTED_IN]->(movie) WHERE movie.title="Apollo 13" RETURN actor;
```



Other Cypher Clauses

CREATE & MERGE

create graph elements

DELETE

delete graph elements

SET

update labels and properties on nodes and relationships

WITH

Chains subsequent query parts and forward results from one to the next. Similar to piping commands in Unix.

Aggregation & Statistics

COUNT, AVG, MAX, MIN, DISTINCT, ...

Neo4j UI Walkthrough

Break

Relational vs Graph Databases

Registration Form

Participant Information (All Participants)

*Name	* (Chinese) * (English)	(Prof./Dr./Mr./Ms.)	(Photo)
*Organization	* Full name(Chinese) * Full name(English) Abbreviation (Chinese) Abbreviation (English)		
*Position			
*Tel			
*Fax			

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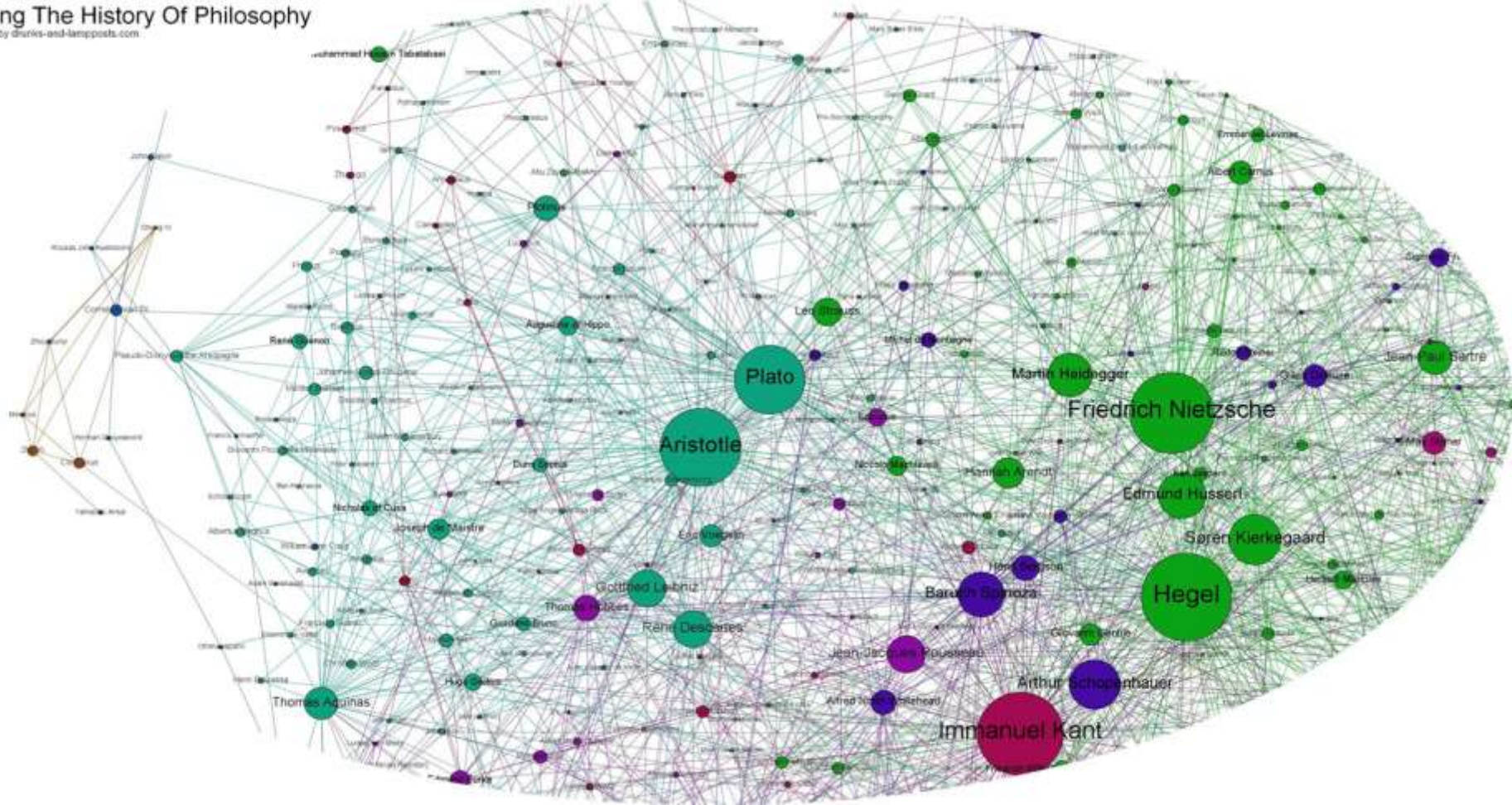
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Waste Customer Copy Main: Invoicing Copy Yellow: File Copy Pink: Exp Copy

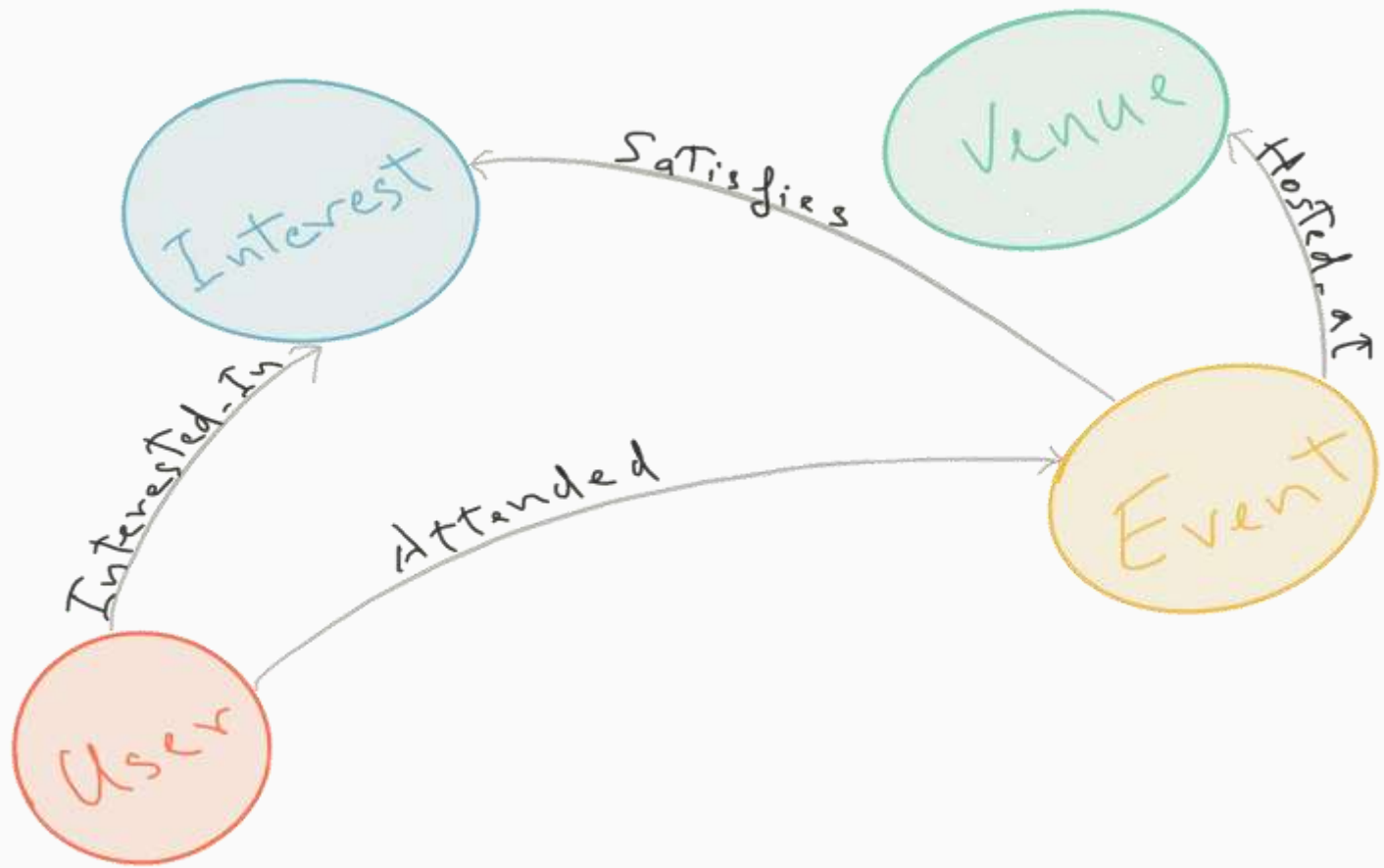
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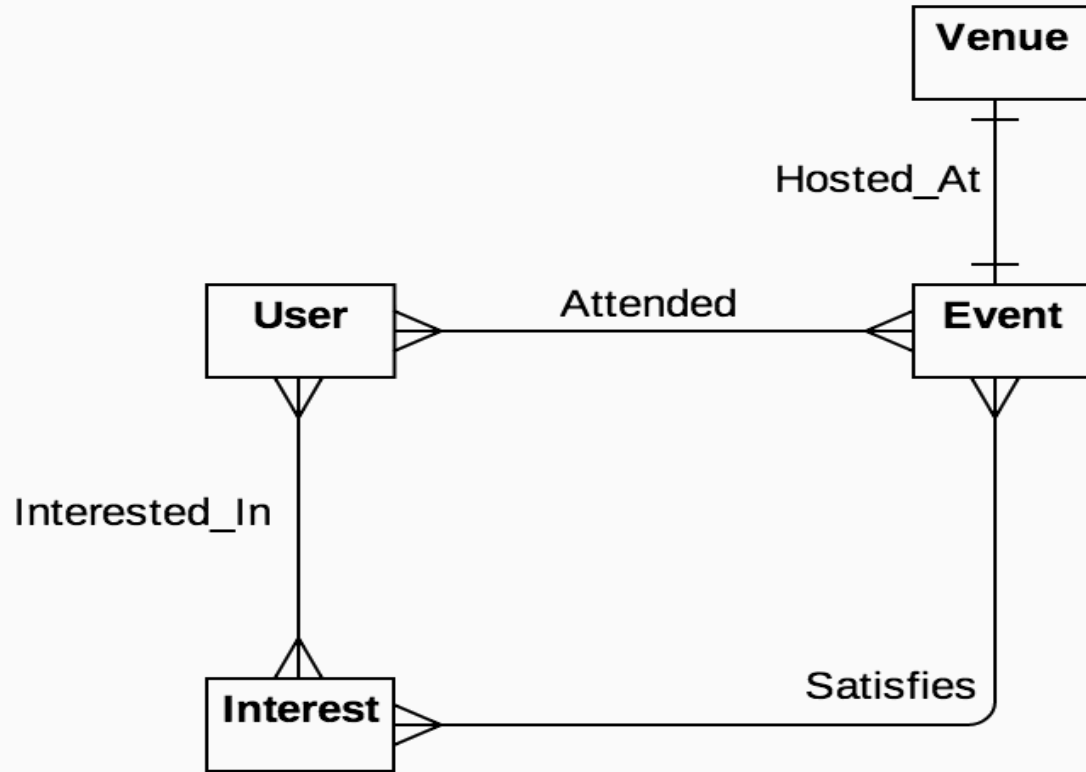
Graphing The History Of Philosophy

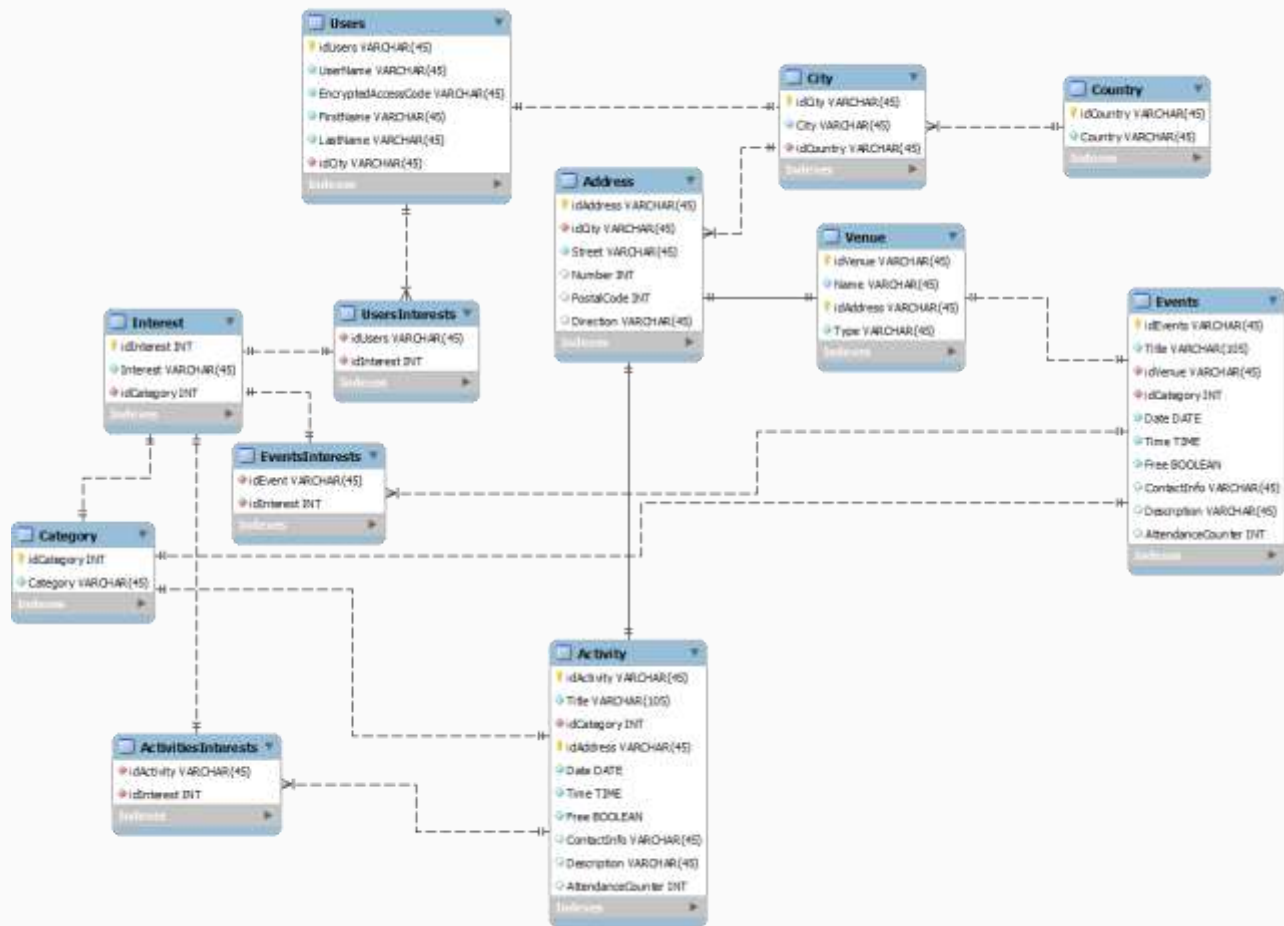
Image created by drunks-and-latepots.com

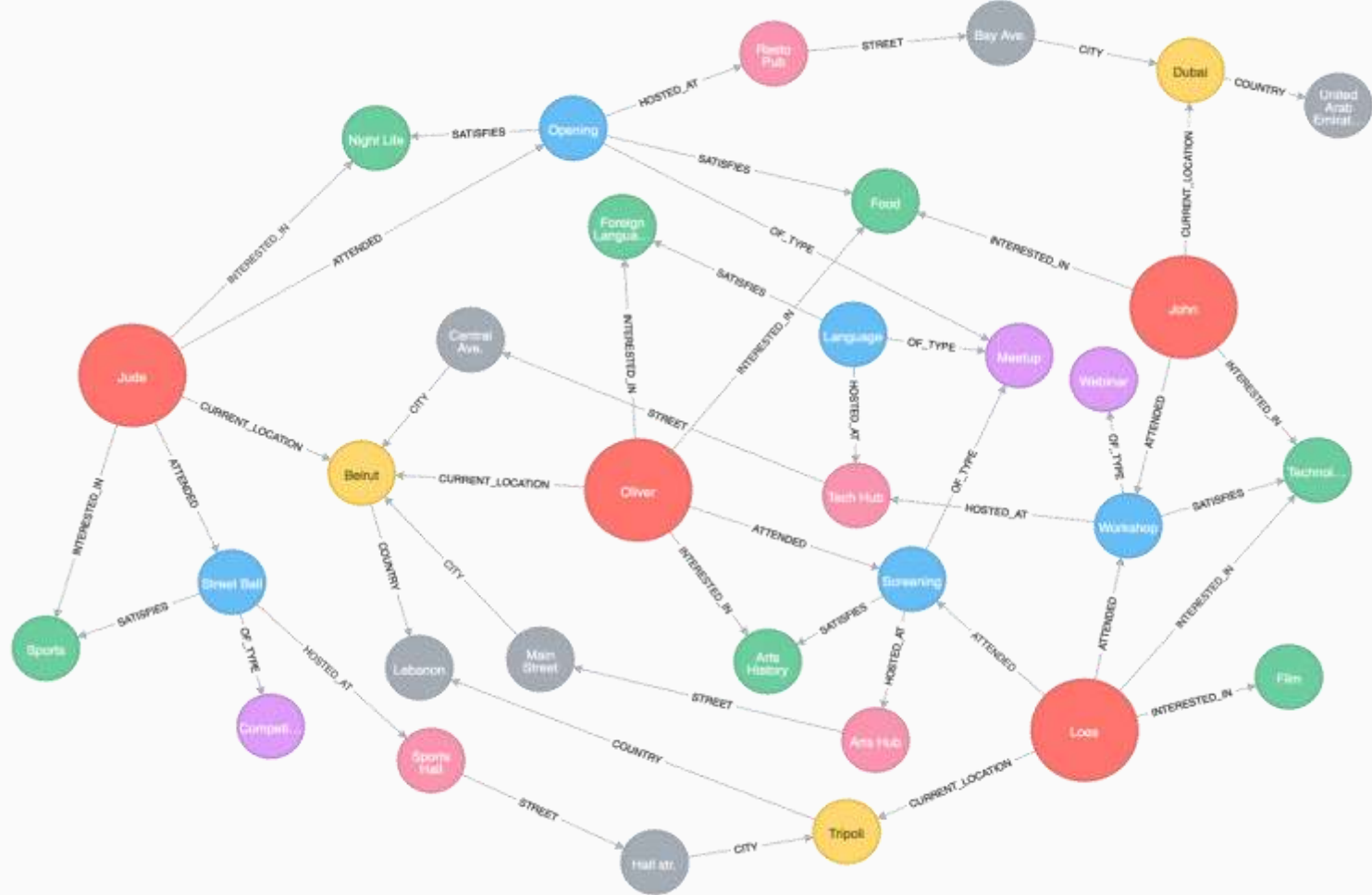


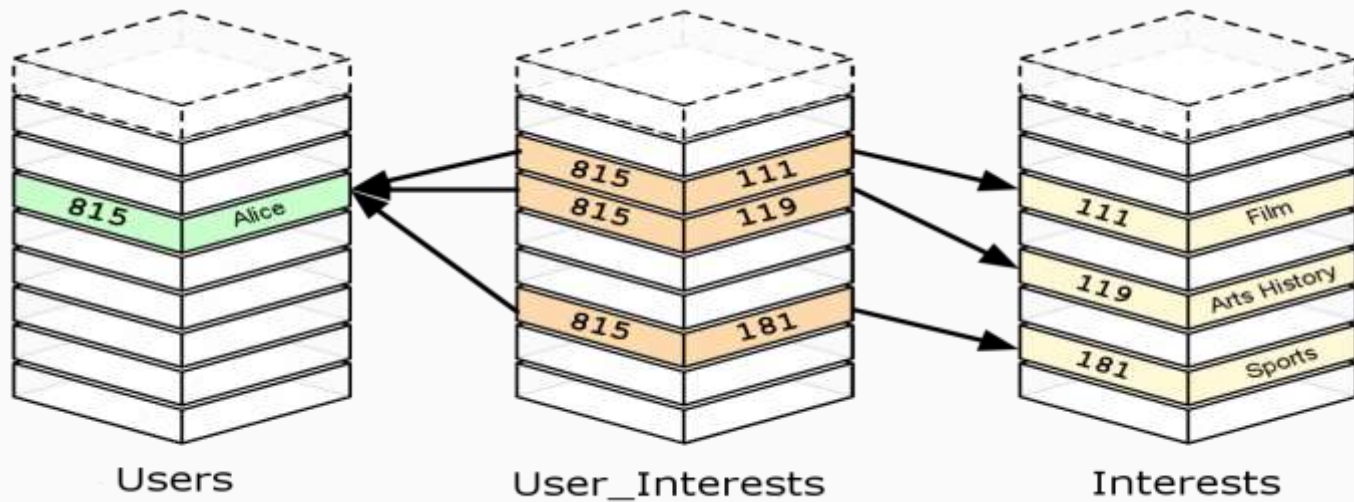
Real world data











List the *interests of "Alice"*

```
SELECT title FROM Interests
LEFT JOIN User_Interests
  ON Interests.Id = User_Interests.InterestId
LEFT JOIN Users
  ON Users.Id = User_Interests.UserId
WHERE Users.name = "Alice"
```

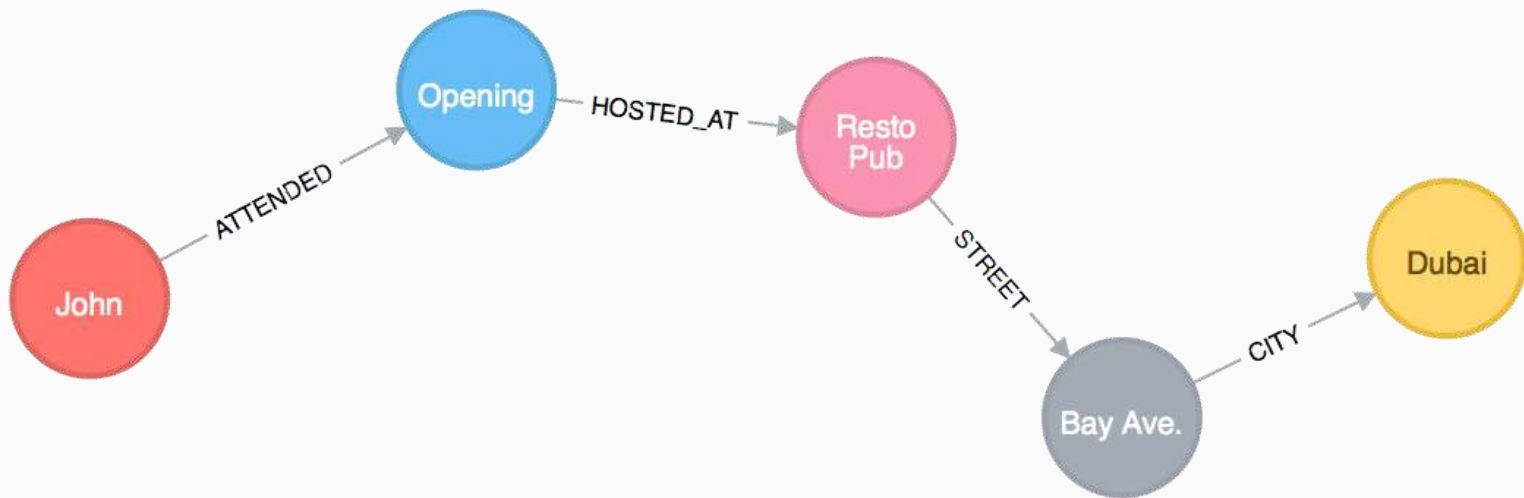


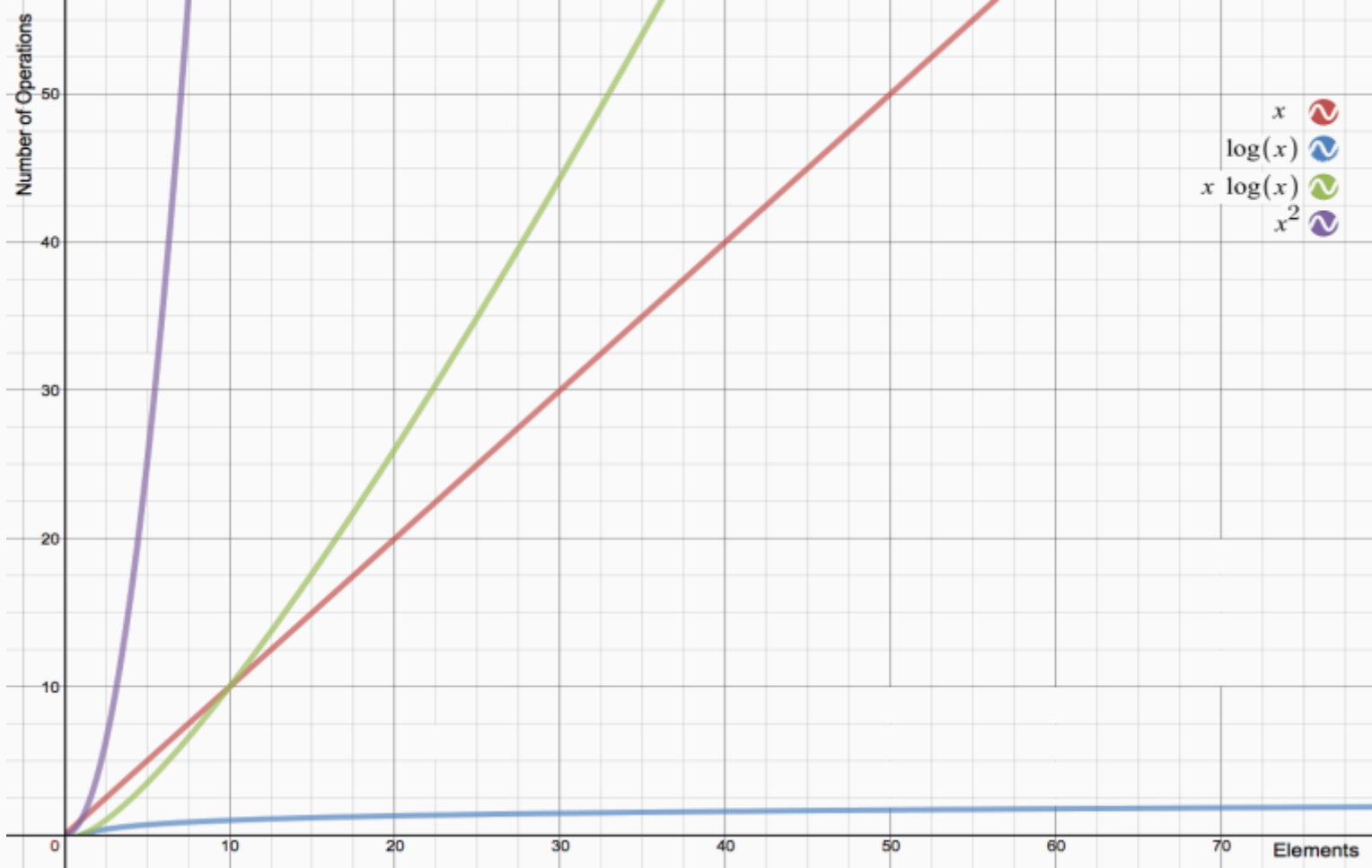
List the *interests* of “Alice”

```
MATCH (u:User)-[:INTERESTD_IN]->(i:Interest)
WHERE u.name = "Alice"
RETURN i.title
```

Where has John been lately?

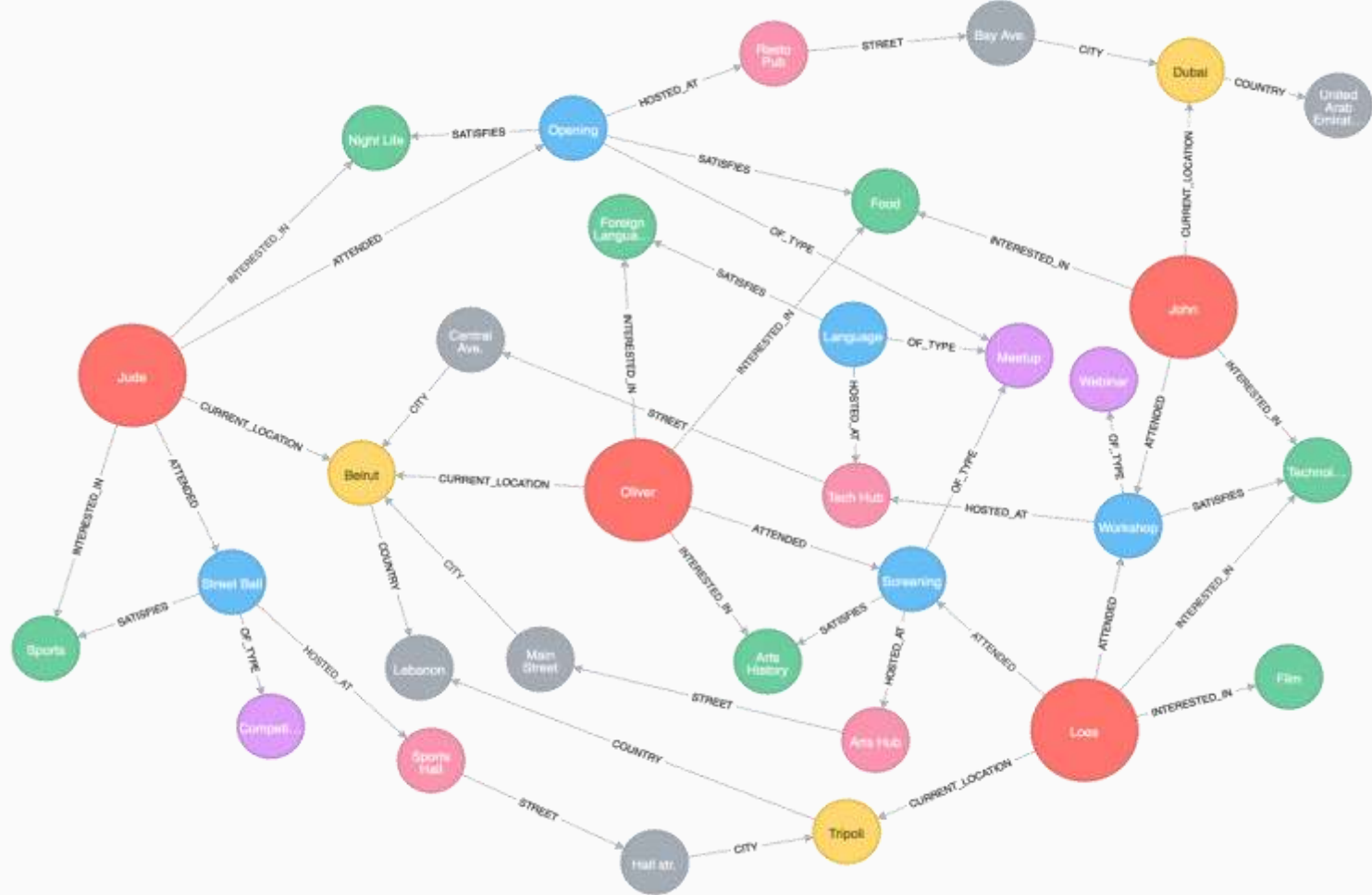
```
MATCH (user:User)-[:ATTENDED]->()-[:HOSTED_AT]->()-[:STREET|CITY *1..2]->(city:City)
WHERE user.name = 'John'
RETURN city;
```



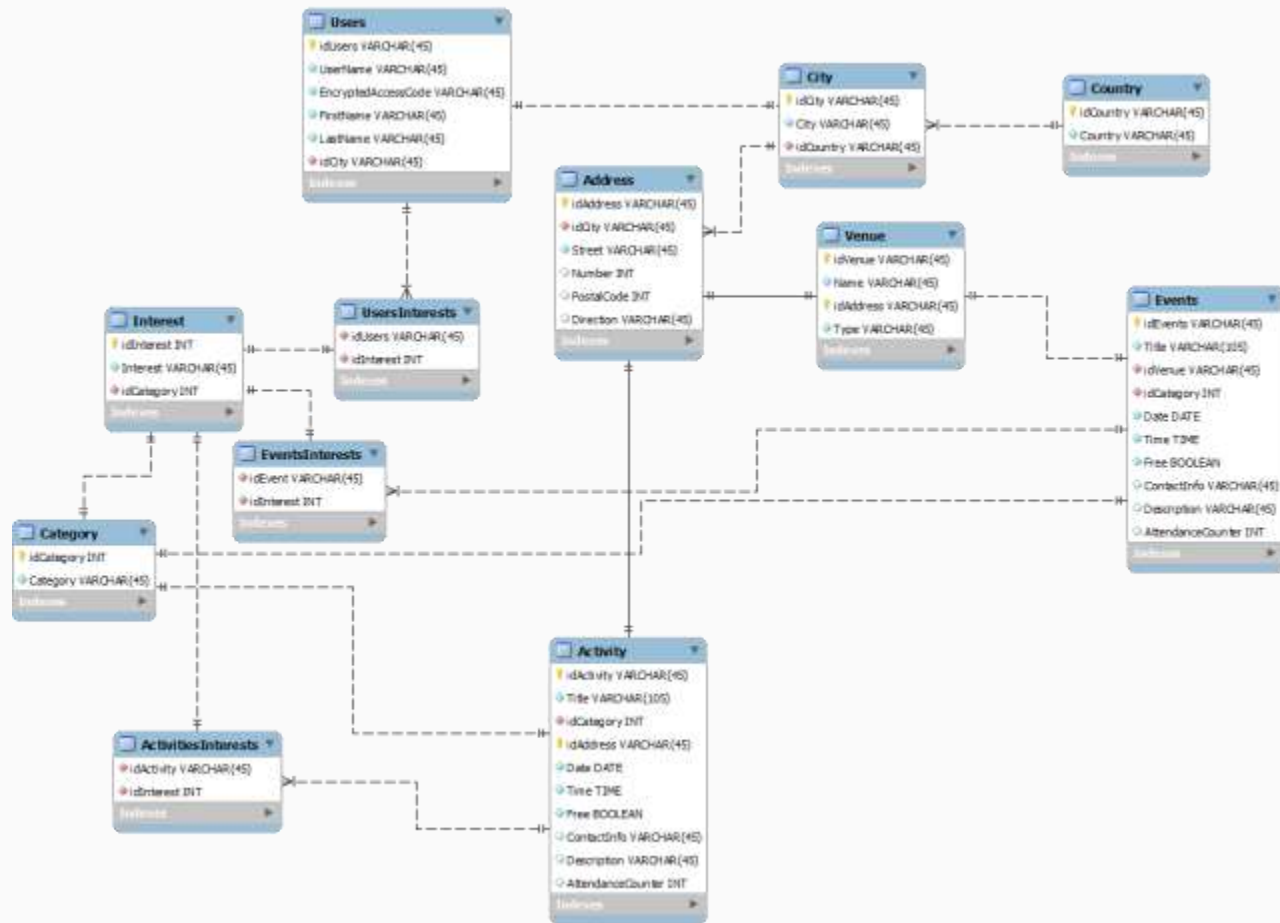


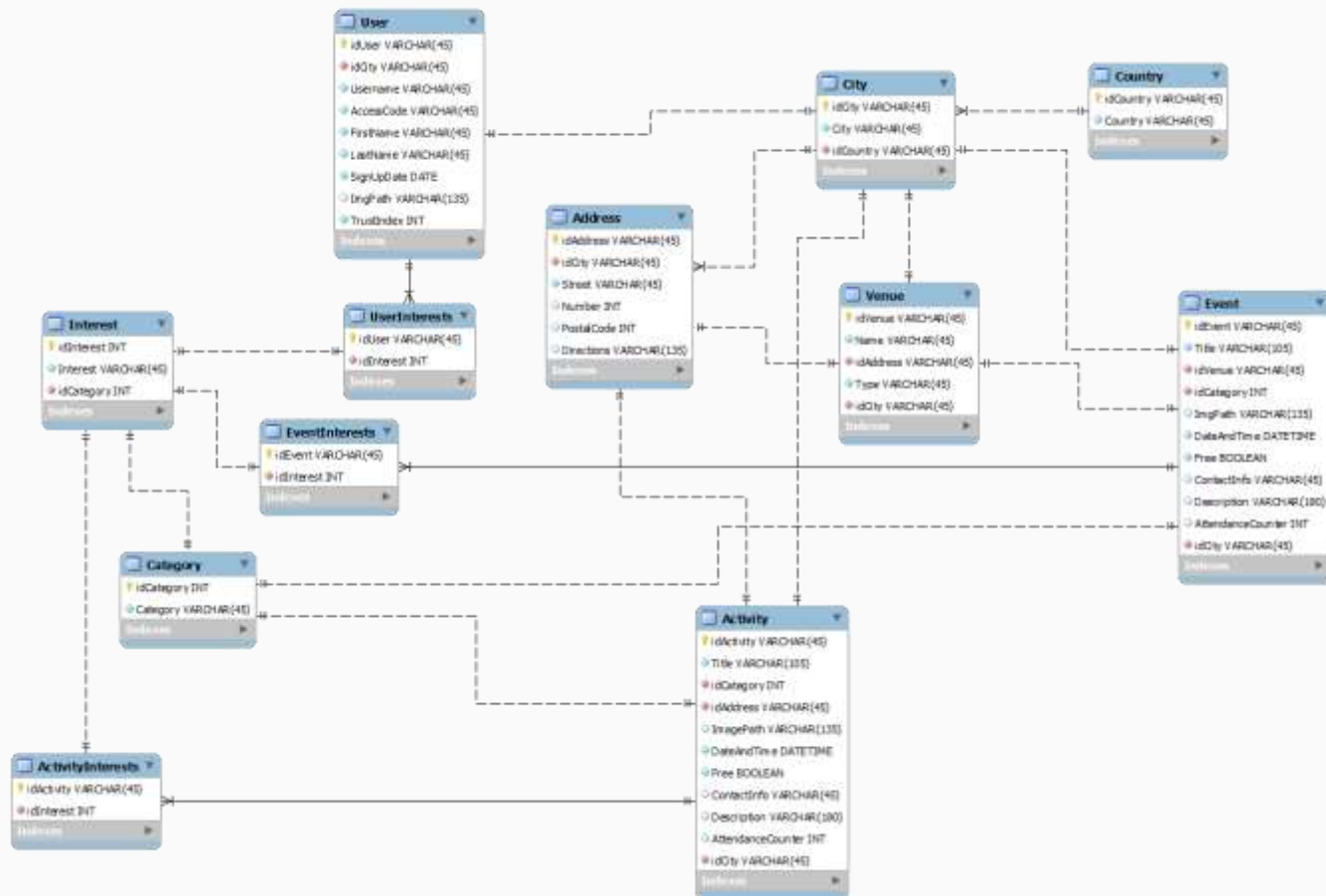
Depth	RDBMS execution time(s)	Neo4j execution time(s)	Records returned
2	0.016	0.01	~2500
3	30.267	0.168	~110,000
4	1543.505	1.359	~600,000
5	Unfinished	2.132	~800,000

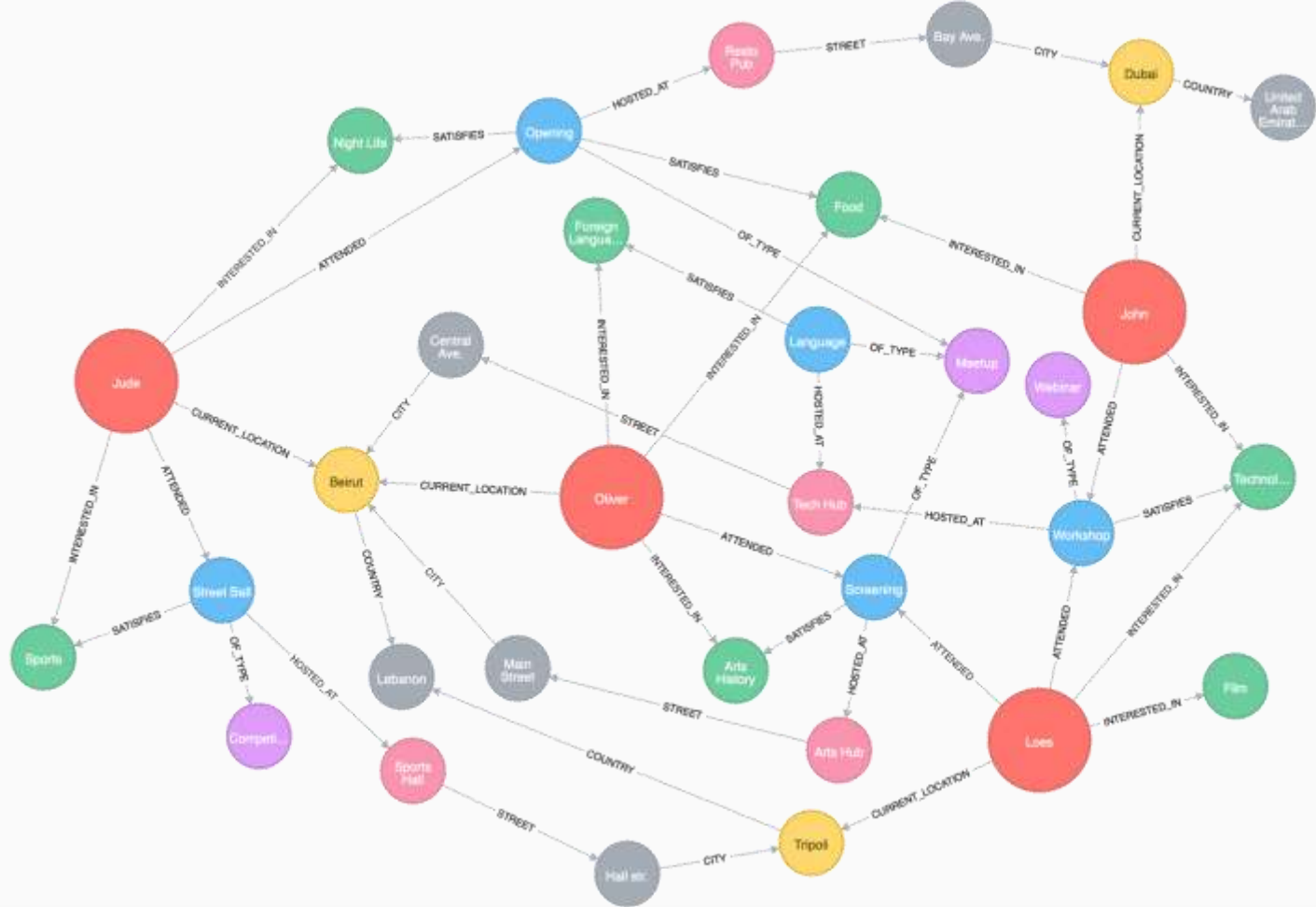
Social Network:
1 million users
50 friend each



My Journey With Graph







Best Practices in Data Modeling

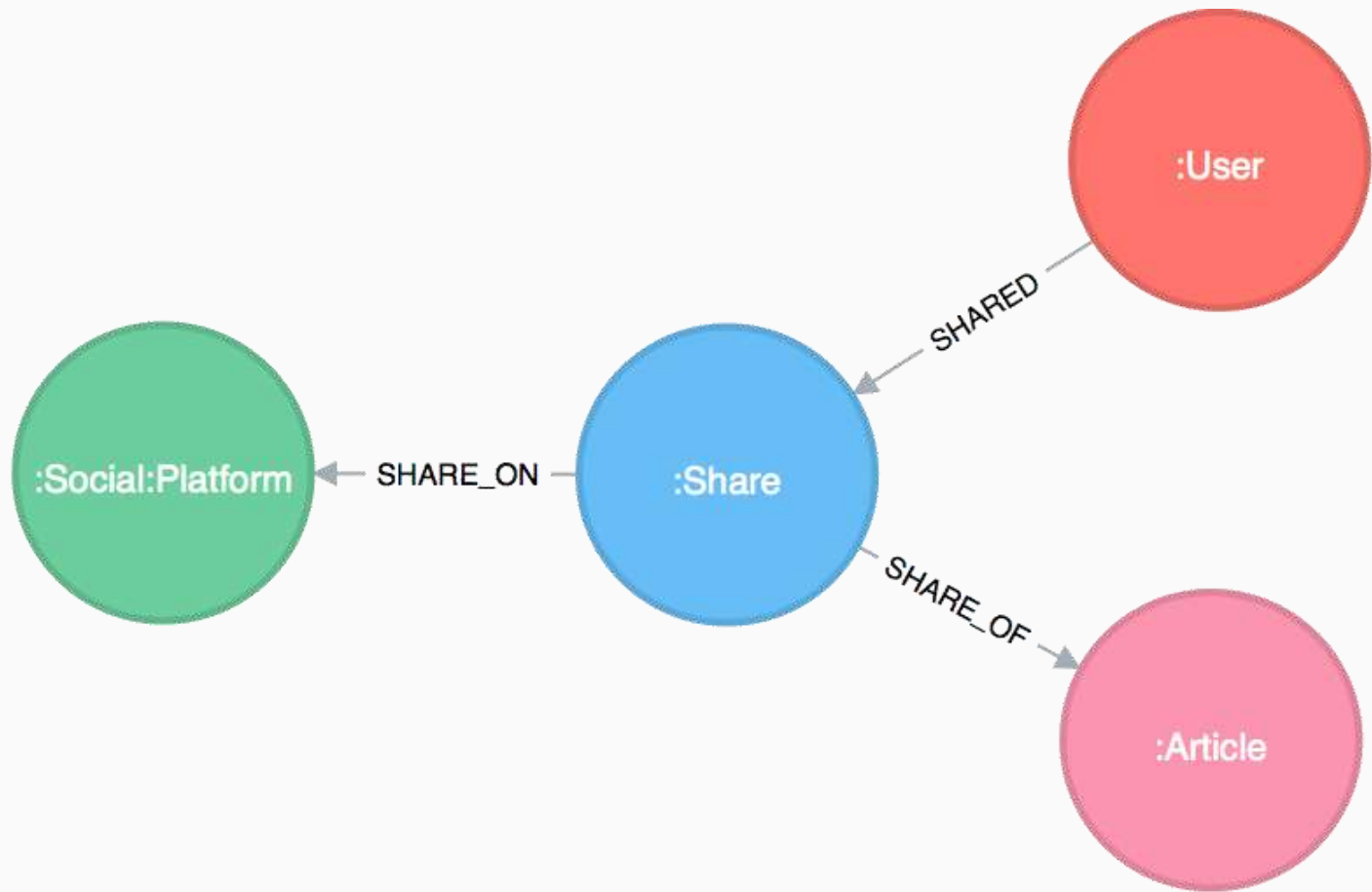




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Questions?





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Ian Robinson,
Jim Webber & Emil Eifrem



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See you next time,

Cheers!