

# Exploring NoSQL at AGM

W205 - Section 8 - Project 3

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# MongoDB

For storing ***collections*** of ***documents***



## Advantages

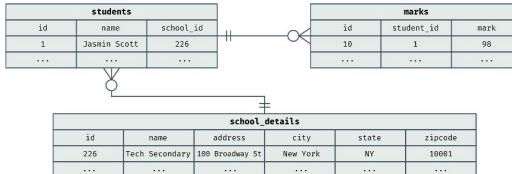
- ⇒ Represent many POVs
- ⇒ Fast
- ⇒ Tolerant schemas

A cartoon illustration of a person with short brown hair and glasses, wearing a yellow t-shirt, sitting at a desk and working on a laptop. To the left of the person is a shelf with three blue books. In the foreground, there is a small green bar chart icon. A green rounded rectangle contains the text "mongo". Below it, a dark grey rounded rectangle contains the command: &gt; db.students.find({"student\_name": "Jasmin Scott"}).

## MongoDB

```
{  
  "_id": 1,  
  "student_name": "Jasmin Scott",  
  "school": {  
    "school_id": 226,  
    "name": "Tech Secondary",  
    "address": "100 Broadway St",  
    "city": "New York",  
    "state": "NY",  
    "zipcode": "10001"  
  },  
  "marks": [98, 93, 95, 88, 100],  
}
```

## SQL



## Results

name	mark	school_name	city
Jasmin Scott	98	Tech Secondary	New York
...	...	...	...

## sql

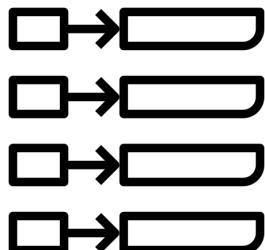
```
SELECT s.name, m.mark, d.name as "school name",  
d.city  
FROM students s  
INNER JOIN marks m ON s.id = m.student_id  
INNER JOIN school_details d ON s.school_id = d.id  
WHERE s.name = "Jasmin Scott";
```

## Example

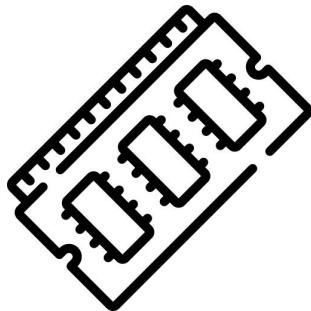
- ⇒ Perform geospatial lookups

# REmote DIctionary Service

Key - Value



In-Memory



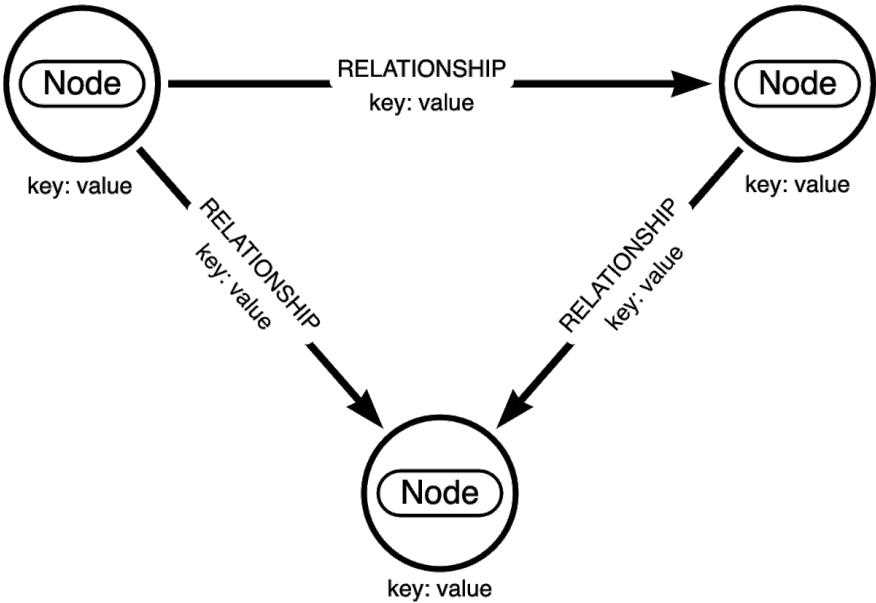
Database-Server



Examples:

- Real-time inventory system
- Real-time shipping information

# Neo4j



Examples:

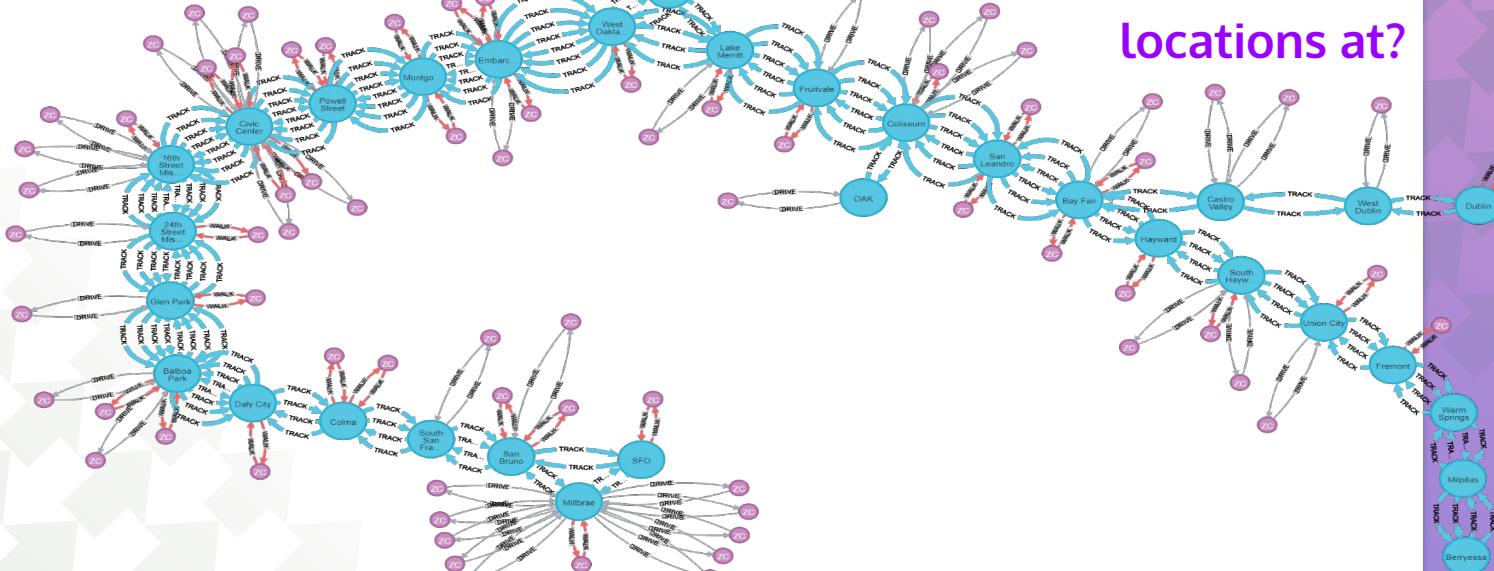
- ⇒ Internal Supply Distribution
- ⇒ Efficient and Flexible Delivery Service



# Graph Database

Consider our network:

⇒ Which stations do we want to open delivery locations at?



# Algorithms

	node	degree	closeness	betweenness	community
0	Balboa Park	2	0.0898	2814	120
1	16th Street Mission	1	0.1096	3652	120
2	24th Street Mission	1	0.1025	3380	120
3	Glen Park	1	0.0959	3092	120
4	Daly City	1	0.0840	2302	120
5	North Berkeley	2	0.1039	1974	128
6	El Cerrito Plaza	2	0.0954	1422	128
7	El Cerrito del Norte	2	0.0877	834	128
8	Richmond	1	0.0808	212	128
9	Hayward	1	0.0986	1958	138
10	South Hayward	1	0.0911	1598	138
11	Union City	1	0.0843	1222	138
12	Fremont	1	0.0783	830	138
13	Warm Springs	0	0.0728	420	138
14	Milpitas	0	0.0680	212	138
15	Berryessa	0	0.0637	0	138
16	Civic Center	4	0.1173	4400	139
17	Embarcadero	3	0.1393	5316	139
18	Montgomery Street	2	0.1321	4922	139
19	Powell Street	2	0.1247	4634	139
20	West Oakland	1	0.1458	5318	139
21	North Concord	2	0.0770	1230	146
22	Rockridge	1	0.1233	2942	146
23	Orinda	1	0.1131	2630	146
24	Lafayette	1	0.1041	2302	146
25	Walnut Creek	1	0.0961	1958	146

# Centrality

community	comm_customers	comm_population	comm_stations	comm_zip_codes
176	1185	166496	[12th Street, 19th Street, Ashby, Downtown Ber...	[ZC 94720, ZC 94608, ZC 94610, ZC 94612, ZC 94...
128	1122	138981	[El Cerrito del Norte, El Cerrito Plaza, North...	[ZC 94530, ZC 94804, ZC 94706, ZC 94702, ZC 94...
139	827	269115	[Civic Center, Embarcadero, Montgomery Street,...	[ZC 94107, ZC 94115, ZC 94133, ZC 94158, ZC 94...
158	680	333991	[Bay Fair, Castro Valley, Coliseum, Dublin, Fr...	[ZC 94577, ZC 94578, ZC 94603, ZC 94621, ZC 94...
146	590	243525	[Antioch, Concord, Lafayette, North Concord, O...	[ZC 94597, ZC 94520, ZC 94519, ZC 94565, ZC 94...
120	309	276894	[16th Street Mission, 24th Street Mission, Bal...	[ZC 94110, ZC 94131, ZC 94114, ZC 94112, ZC 94...
152	74	247968	[Colma, Millbrae, San Bruno, SFO, South San Fr...	[ZC 94014, ZC 94030, ZC 94080, ZC 94066, ZC 94...
138	36	293747	[Berryessa, Fremont, Hayward, Milpitas, South ...	[ZC 94541, ZC 94587, ZC 94544, ZC 94536]

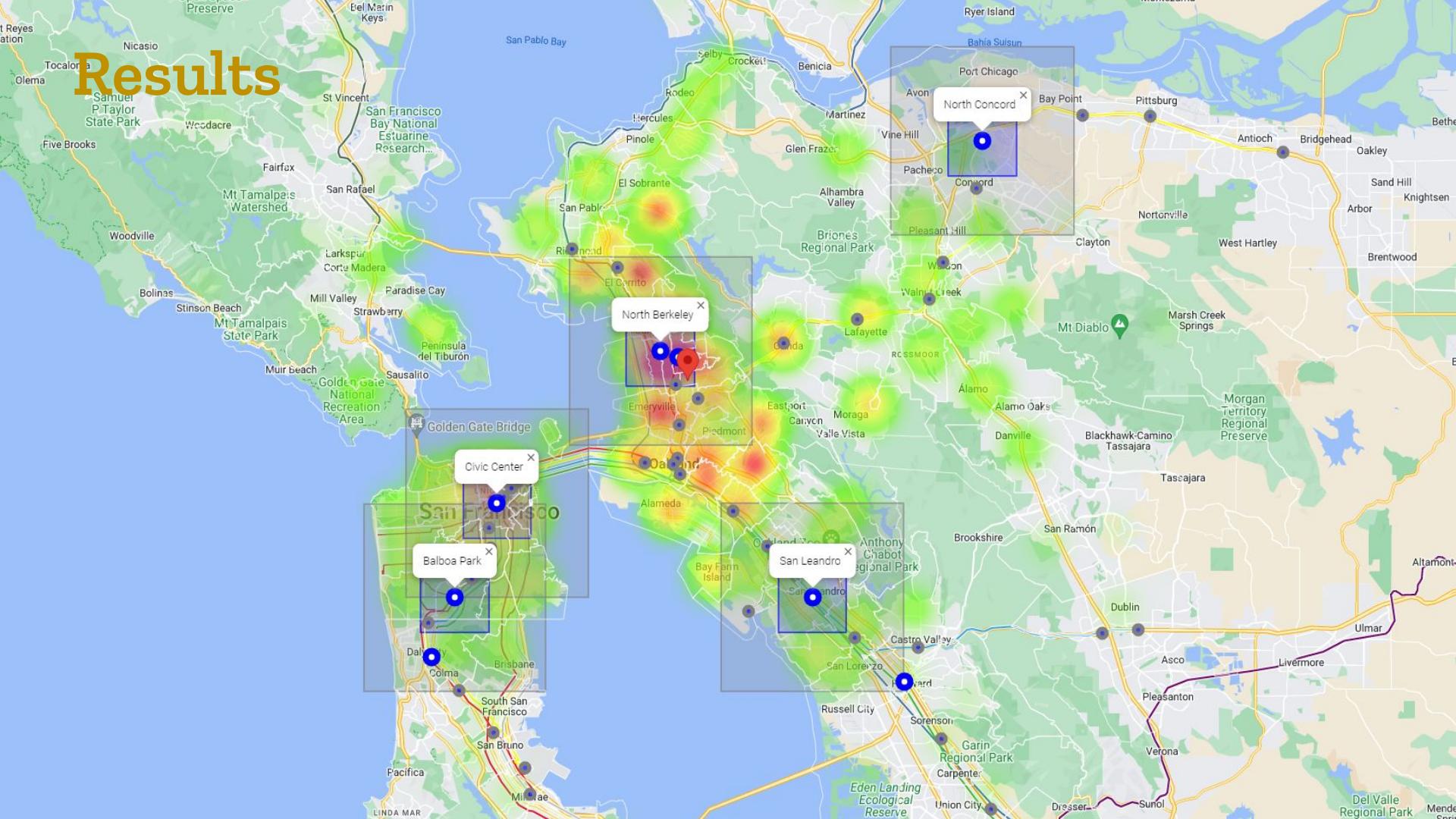
# Pathfinding

# Community Detection

# Results



# Results



# Questions?

