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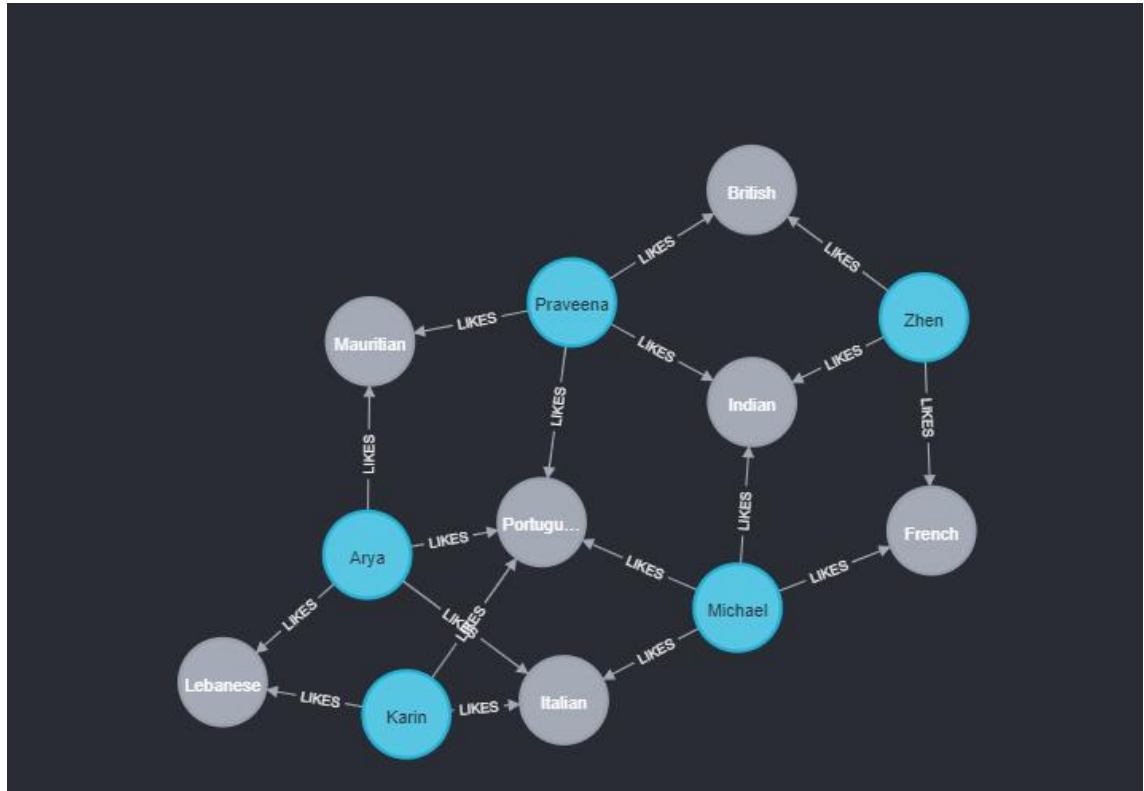
Materia: Sistemas Expertos

Fecha:10/02/2021

Similitud de Coseno

1. **Creacion de Nodos en neo4j**

```
CREATE (french:Cuisine {name:'French'})
CREATE (italian:Cuisine {name:'Italian'})
CREATE (indian:Cuisine {name:'Indian'})
CREATE (lebanese:Cuisine {name:'Lebanese'})
CREATE (portuguese:Cuisine {name:'Portuguese'})
CREATE (british:Cuisine {name:'British'})
CREATE (mauritian:Cuisine {name:'Mauritian'})
CREATE (zhen:Person {name: "Zhen"})
CREATE (praveena:Person {name: "Praveena"})
CREATE (michael:Person {name: "Michael"})
CREATE (arya:Person {name: "Arya"})
CREATE (karin:Person {name: "Karin"})
CREATE (praveena)-[:LIKES {score: 9}]->(indian)
CREATE (praveena)-[:LIKES {score: 7}]->(portuguese)
CREATE (praveena)-[:LIKES {score: 8}]->(british)
CREATE (praveena)-[:LIKES {score: 1}]->(mauritian)
CREATE (zhen)-[:LIKES {score: 10}]->(french)
CREATE (zhen)-[:LIKES {score: 6}]->(indian)
CREATE (zhen)-[:LIKES {score: 2}]->(british)
CREATE (michael)-[:LIKES {score: 8}]->(french)
CREATE (michael)-[:LIKES {score: 7}]->(italian)
CREATE (michael)-[:LIKES {score: 9}]->(indian)
CREATE (michael)-[:LIKES {score: 3}]->(portuguese)
CREATE (arya)-[:LIKES {score: 10}]->(lebanese)
CREATE (arya)-[:LIKES {score: 10}]->(italian)
CREATE (arya)-[:LIKES {score: 7}]->(portuguese)
CREATE (arya)-[:LIKES {score: 9}]->(mauritian)
CREATE (karin)-[:LIKES {score: 9}]->(lebanese)
CREATE (karin)-[:LIKES {score: 7}]->(italian)
CREATE (karin)-[:LIKES {score: 10}]->(portuguese)
```

MATCH de los Nodos Creados.

Lo siguiente devolverá la similitud coseno de Michael y Arya:

```
MATCH (p1:Person {name: 'Michael'})-[likes1:LIKES]→(cuisine)
MATCH (p2:Person {name: "Arya"})-[likes2:LIKES]→(cuisine)
RETURN p1.name AS from,
 p2.name AS to,
 gds.alpha.similarity.cosine(collect(likes1.score), collect(likes2.score)) AS similarity
```


from	to	similarity
"Michael"	"Arya"	0.9788908326303921

Lo siguiente devolverá la similitud de Coseno de Michael y las otras personas que tienen en común

```
MATCH (p1:Person {name: 'Michael'})-[likes1:LIKES]→(cuisine)
MATCH (p2:Person)-[likes2:LIKES]→(cuisine) WHERE p2 <> p1
RETURN p1.name AS from,
 p2.name AS to,
 gds.alpha.similarity.cosine(collect(likes1.score), collect(likes2.score)) AS similarity
ORDER BY similarity DESC
```

```
neo4j$ MATCH (p1:Person {name: 'Michael'})-[likes1:LIKES]→(cuisine) MATCH (p2:Person)-[likes2:LIKES]→(cuisine) WHERE p2 ⟨⟩…
```

from	to	similarity
"Michael"	"Arya"	0.9788908326303921
"Michael"	"Zhen"	0.9542262139256075
"Michael"	"Praveena"	0.9429903335828894
"Michael"	"Karin"	0.8498063272285821

Started streaming 4 records after 1 ms and completed after 9 ms.