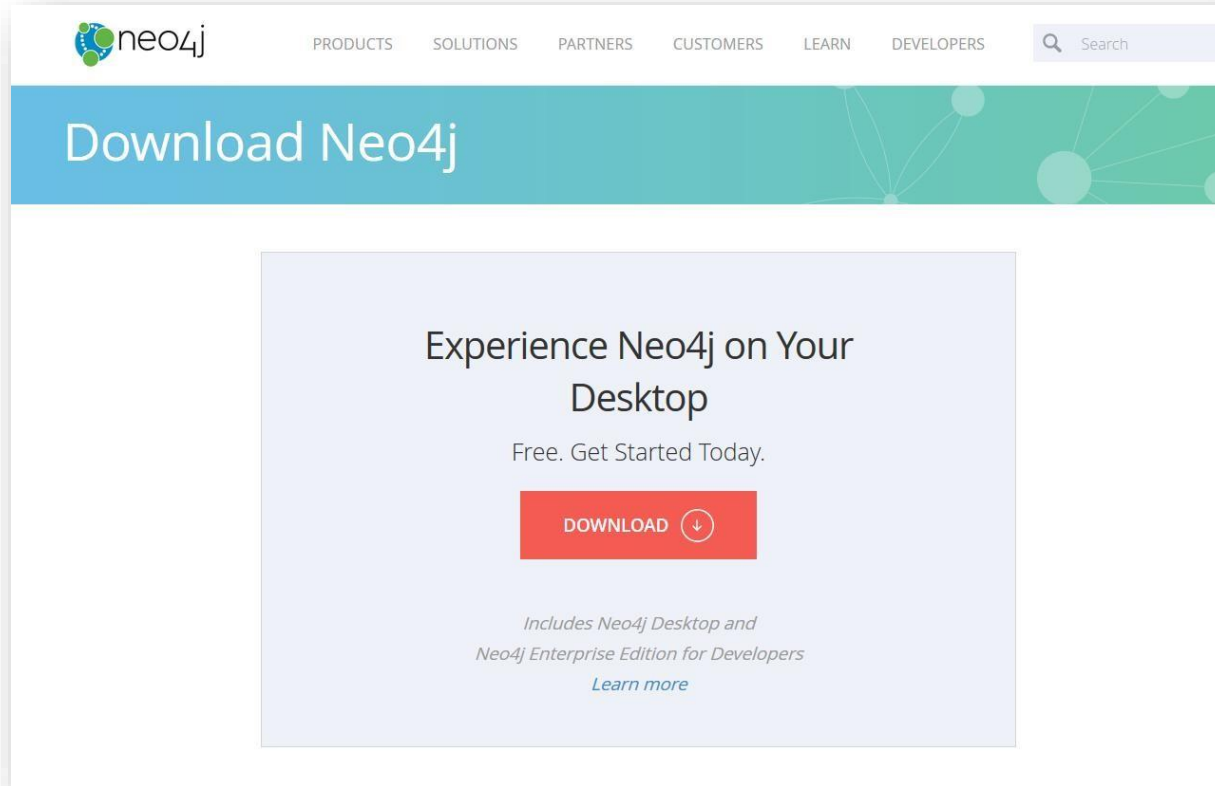


neo4j

Introducción e
Instalación

Descargar:

<https://neo4j.com/download/>



Get Started Now

Please fill out this form to begin your download

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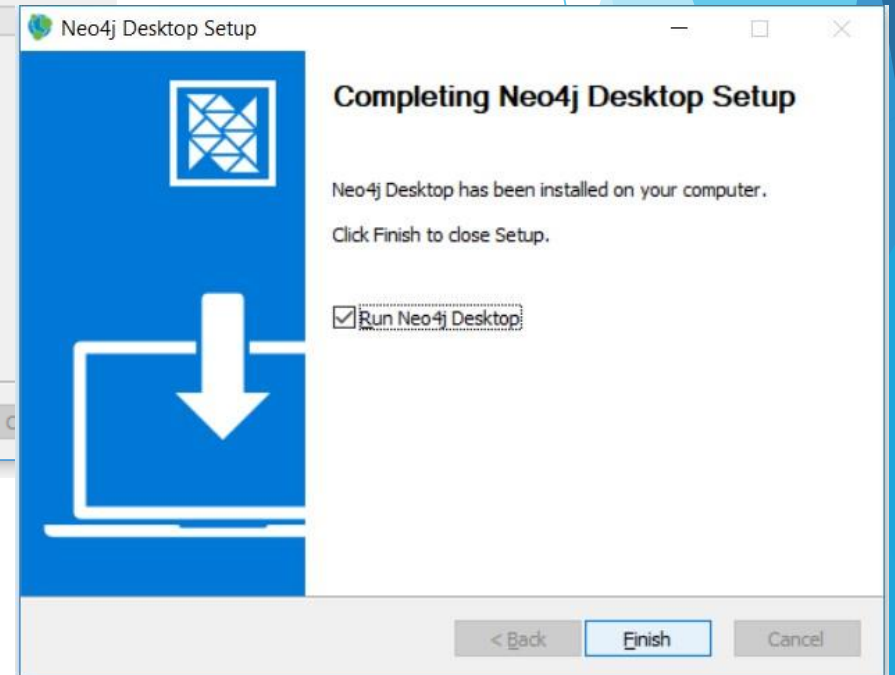
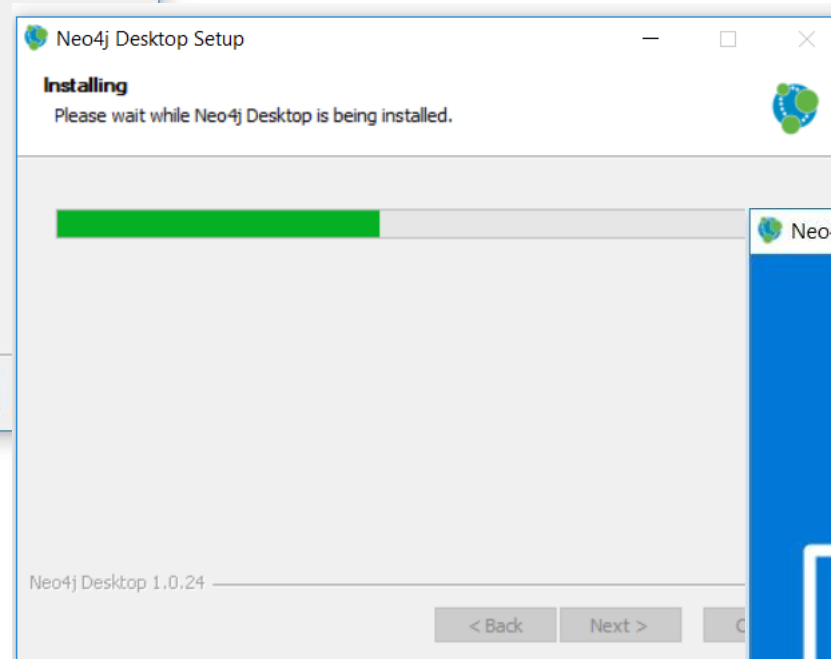
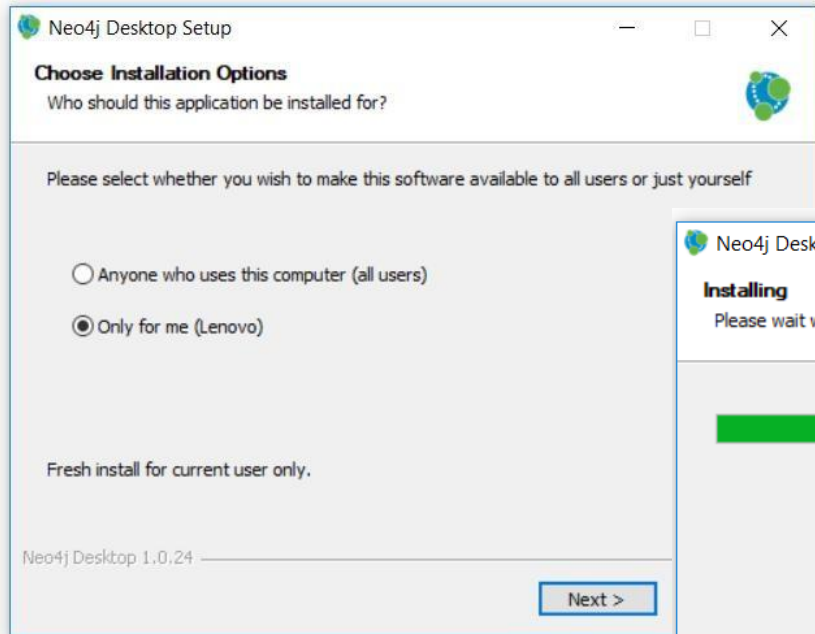
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By downloading you agree to the [Neo4j License Agreement for Neo4j Desktop Software.](#)

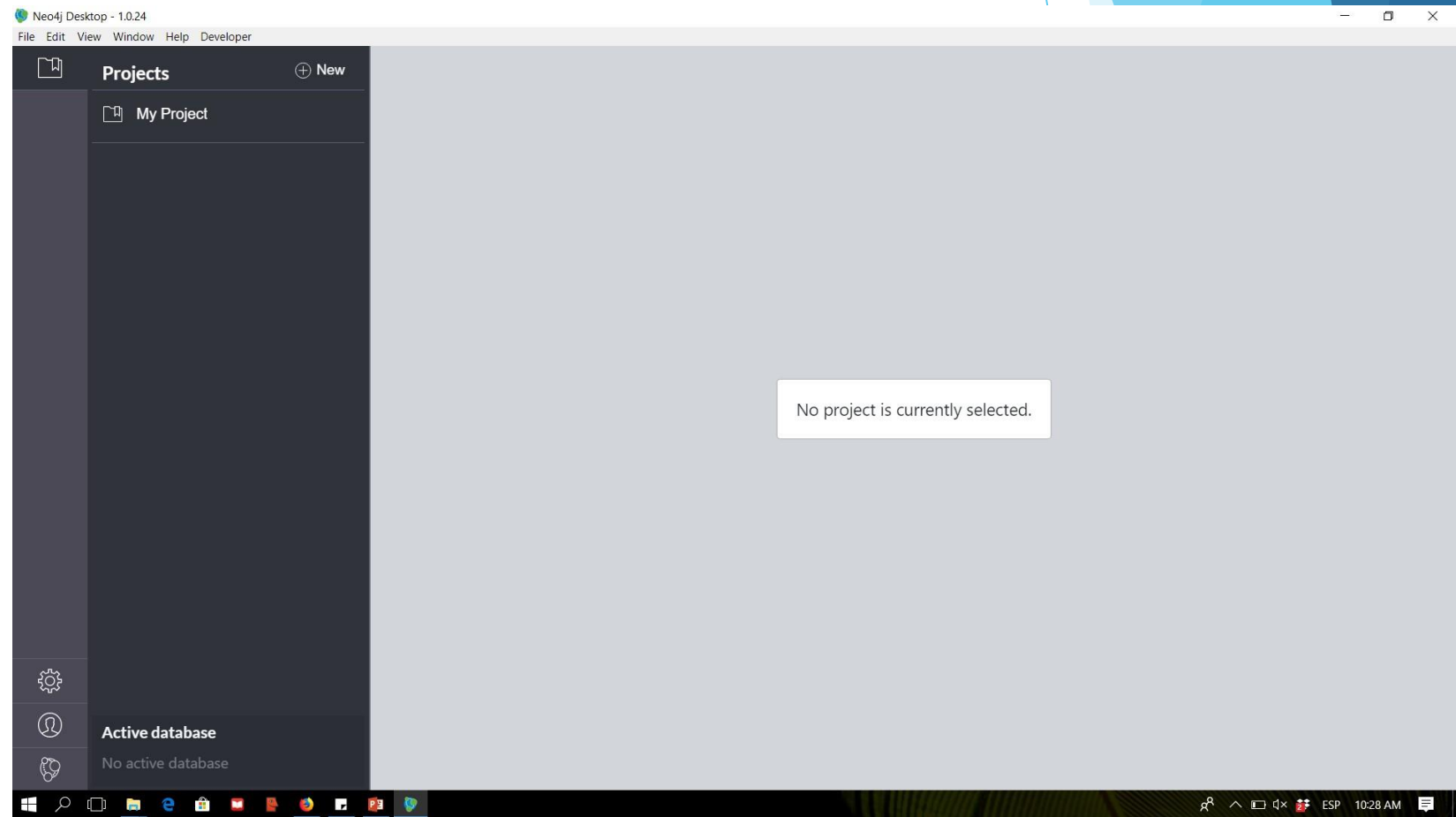
Descargar:

<https://neo4j.com/download/>

neo4j-desktop-offline-1.0.24-setup 5/5/2018 10:22 AM Application 248,800 KB



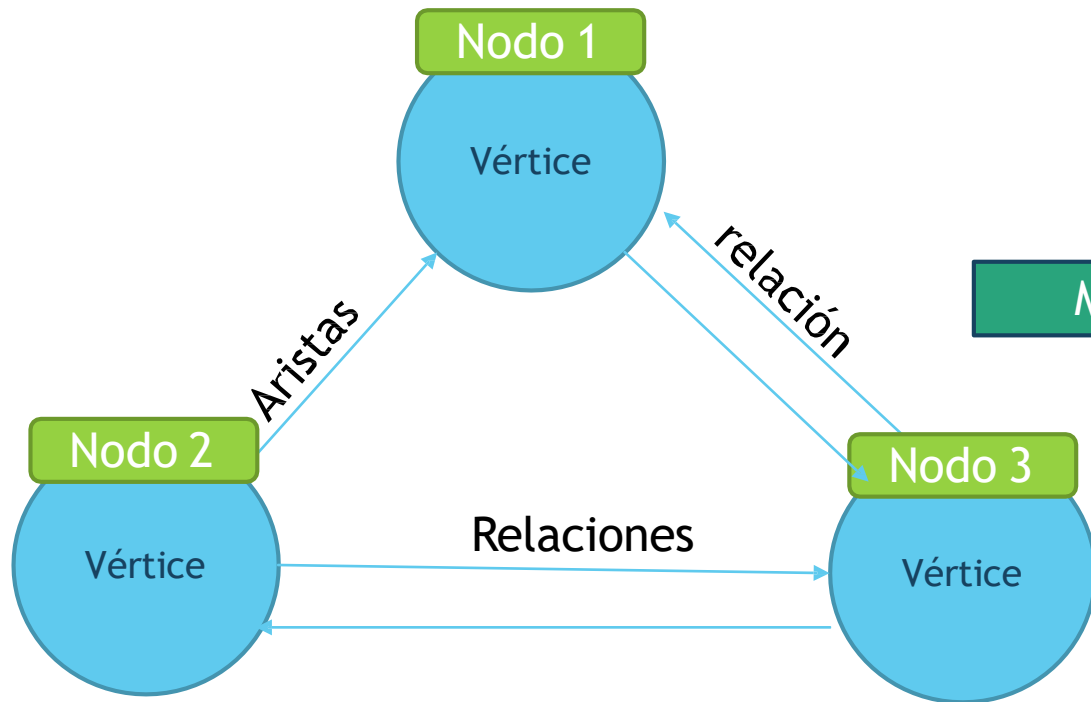
Neo4j Desktop



Agenda

- ▶ Qué es Neo4j?
- ▶ Instalación
- ▶ Ejercicios demostrativos
- ▶ Taller

Qué es un grafo?



Modelar

Construcción de un cohete espacial

Sistema de carreteras

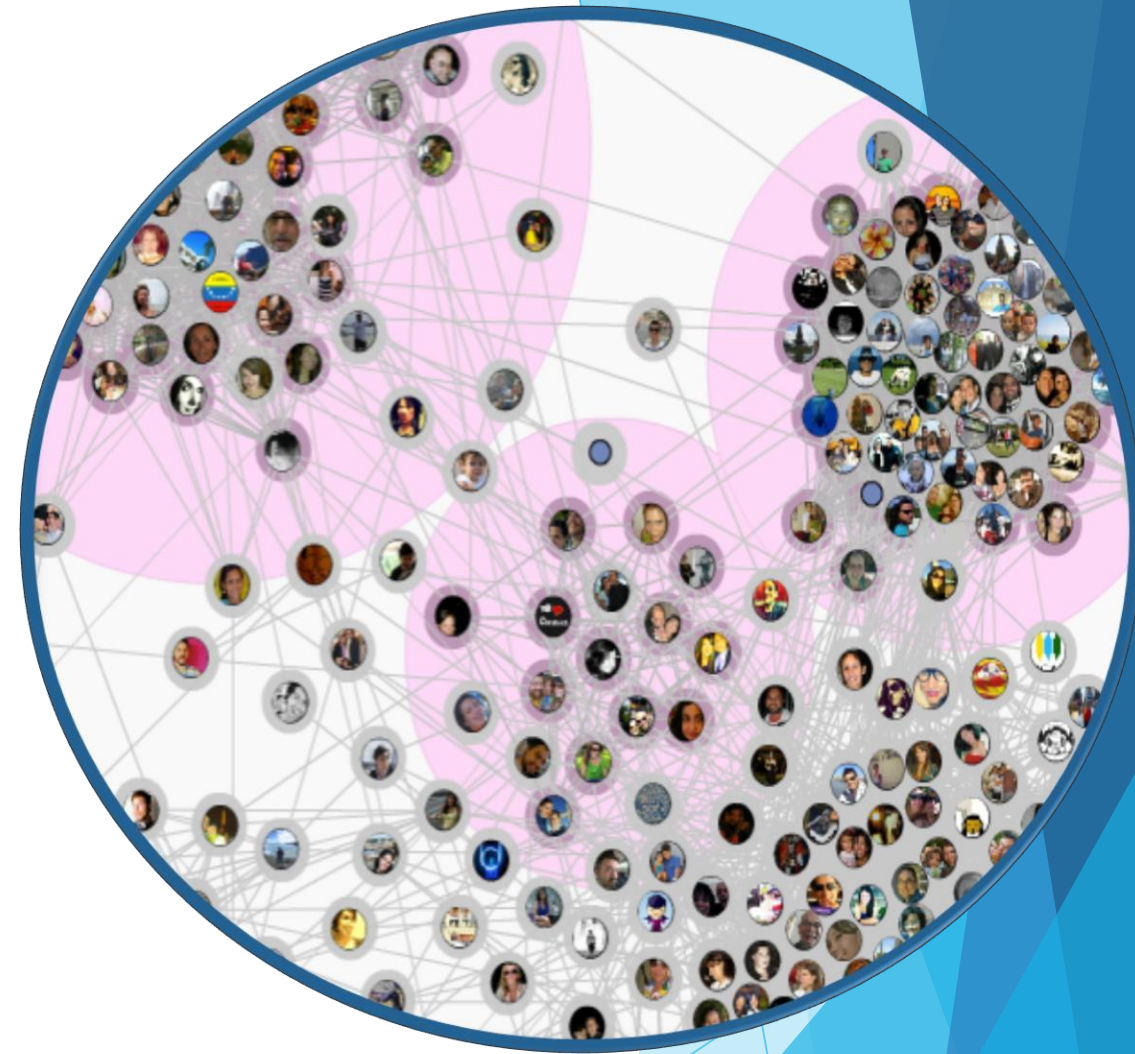
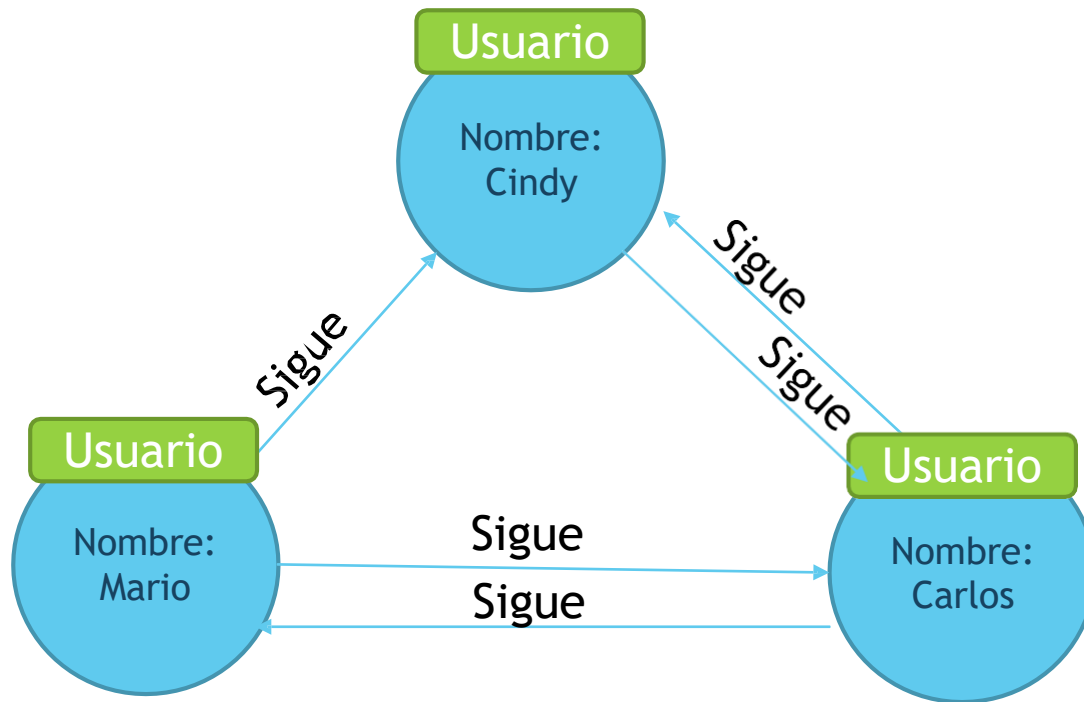
Cadena o procedencia de alimentos

Historia médica de poblaciones

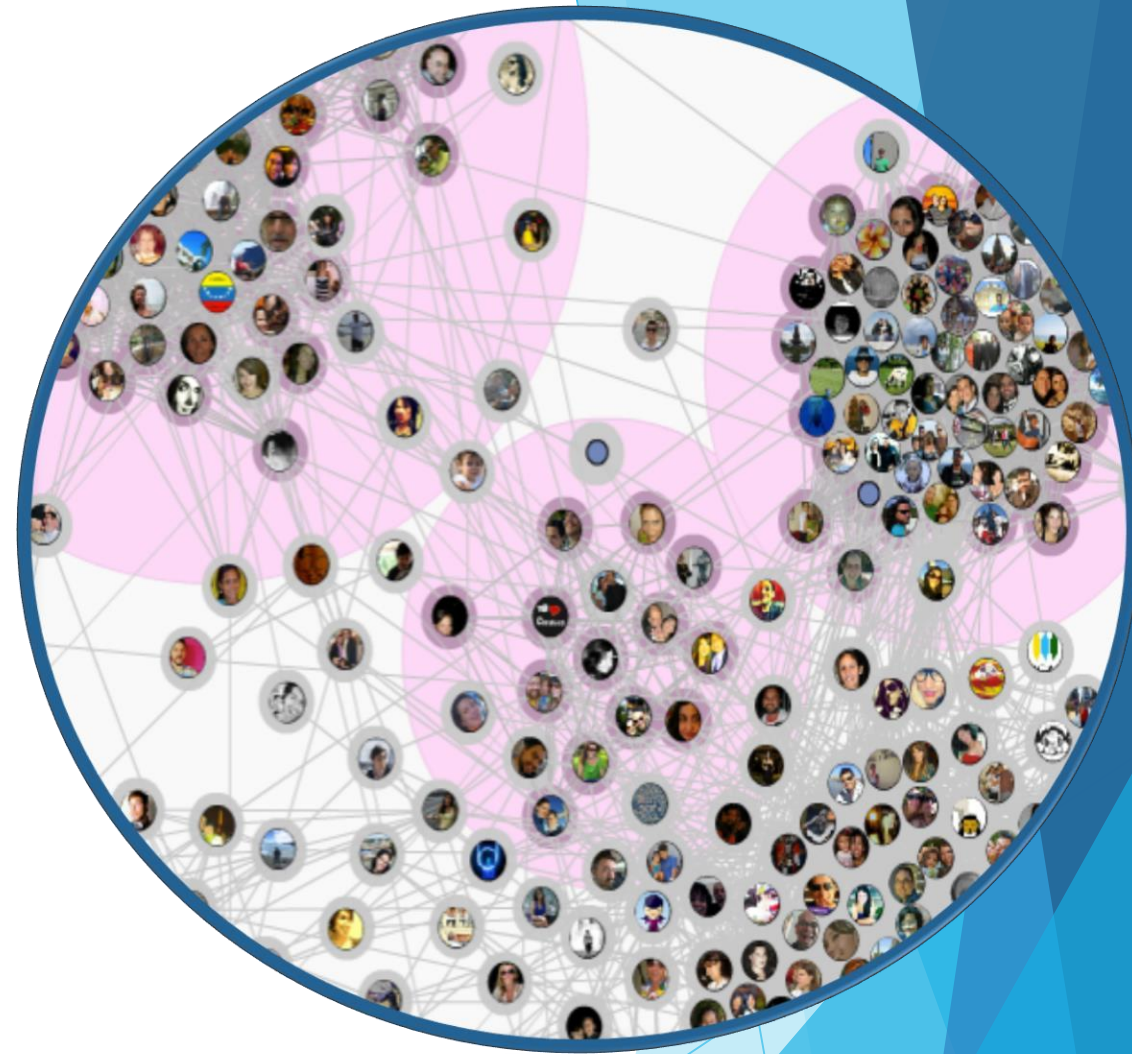
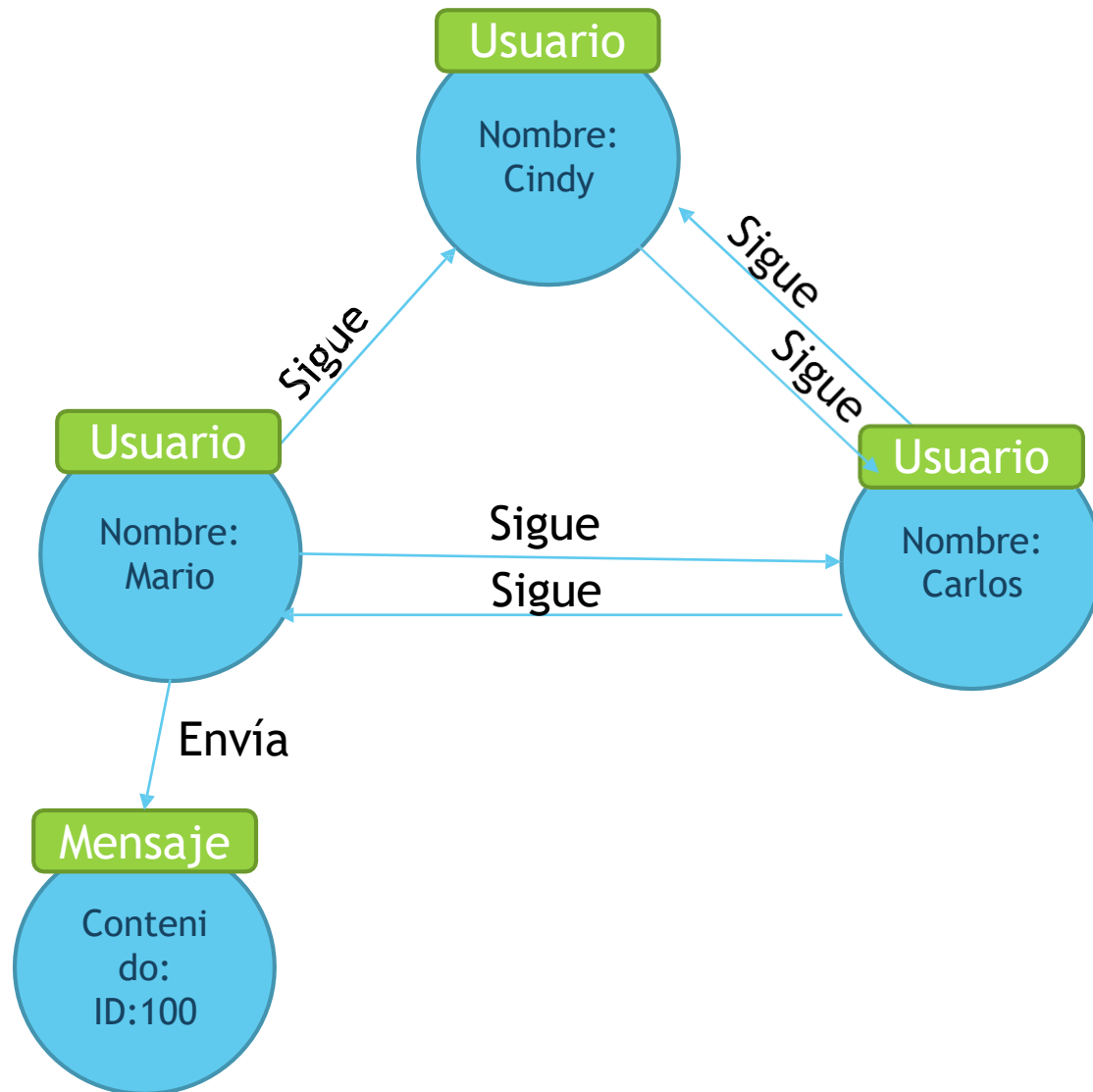
Árbol Genealógico

Redes Sociales

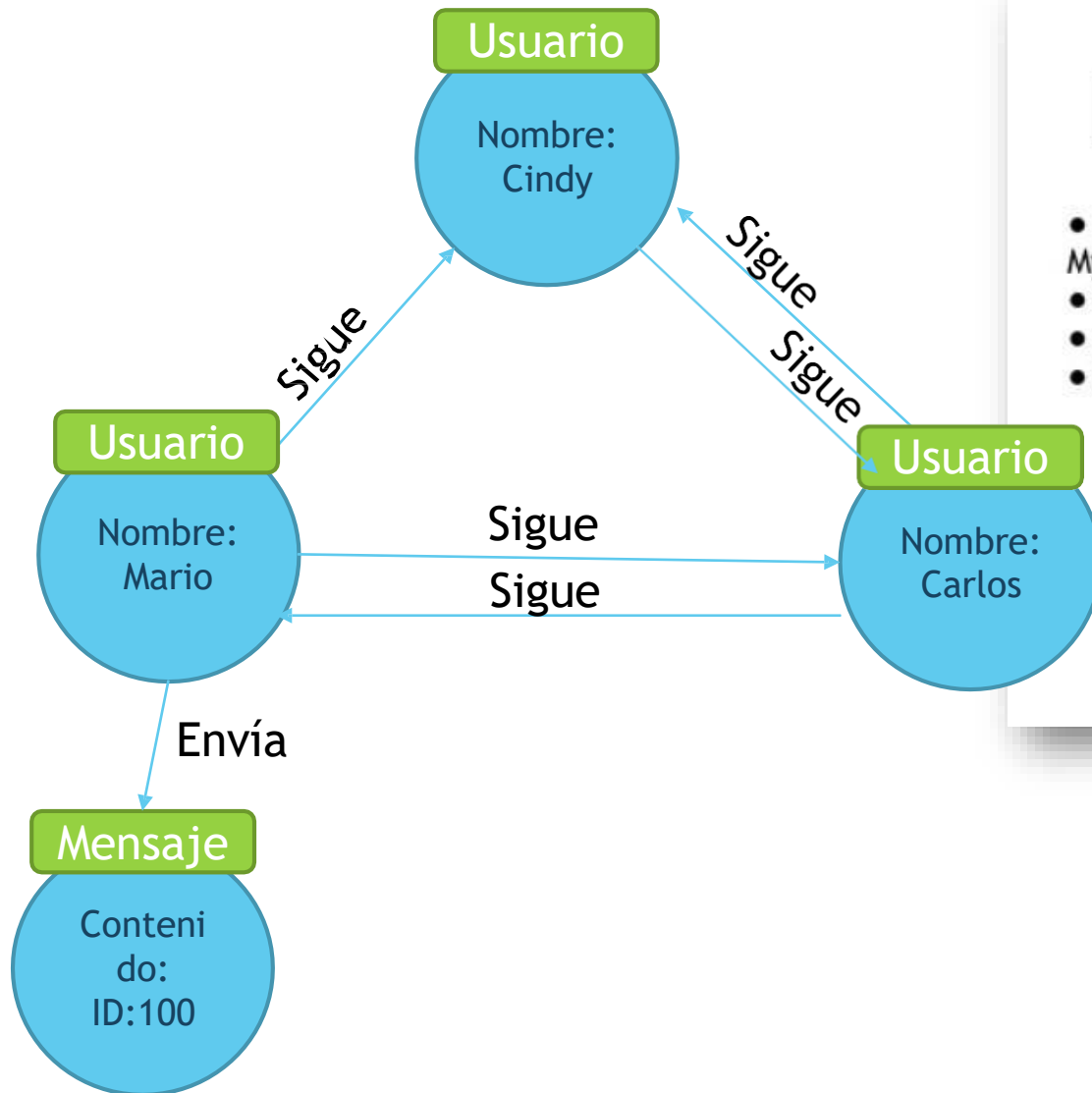
Grafo - Ejemplo twitter



Grafo - Ejemplo twitter



Grafo - Ejemplo twitter



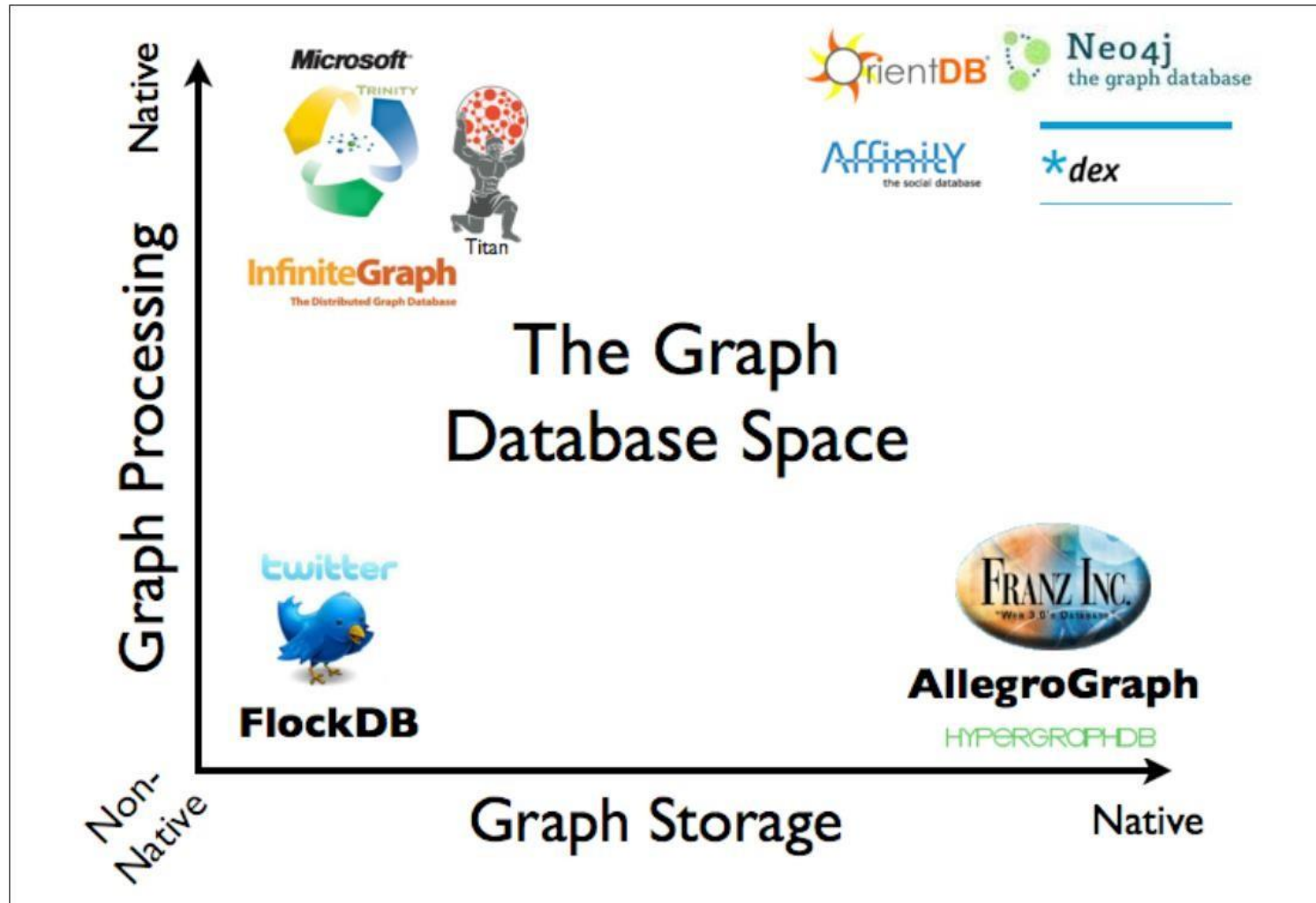
Neo4j vs. Mysql



- for the simple **friends of friends** query, Neo4j is **60%** faster than MySQL
- for **friends of friends of friends**, Neo is **180 times** faster
- and for the **depth four query**, Neo4j is **1,135 times** faster
- and MySQL just chokes on the **depth 5 query**

Depth	Execution – MySQL	Execution – neo4j
2	0.016	0.010
3	30.267	0.168
4	1,543.505	1.359
5	Not finished in an hour	2.132

Bases de datos a base de grafos



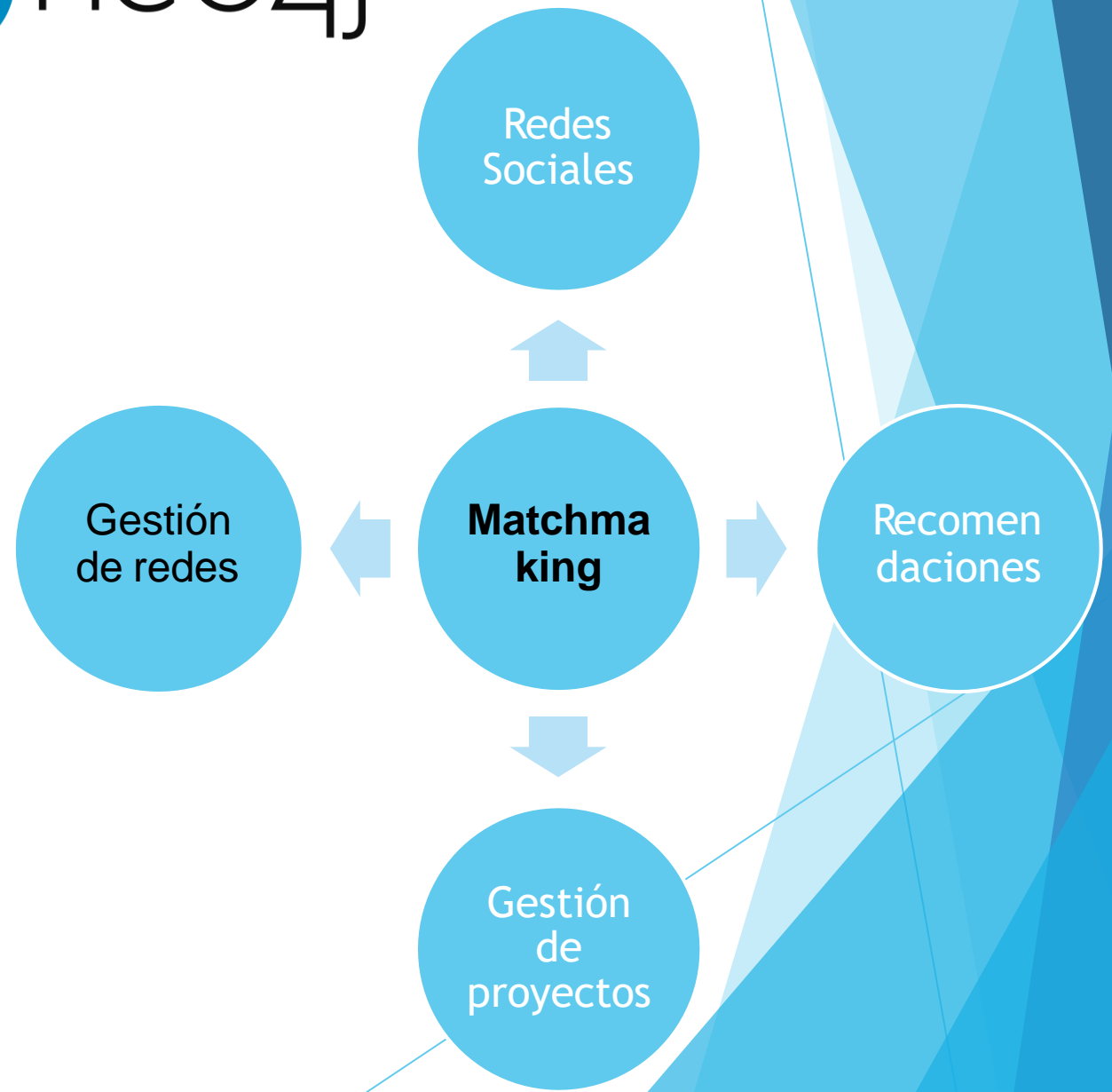
Que es Neo4j?



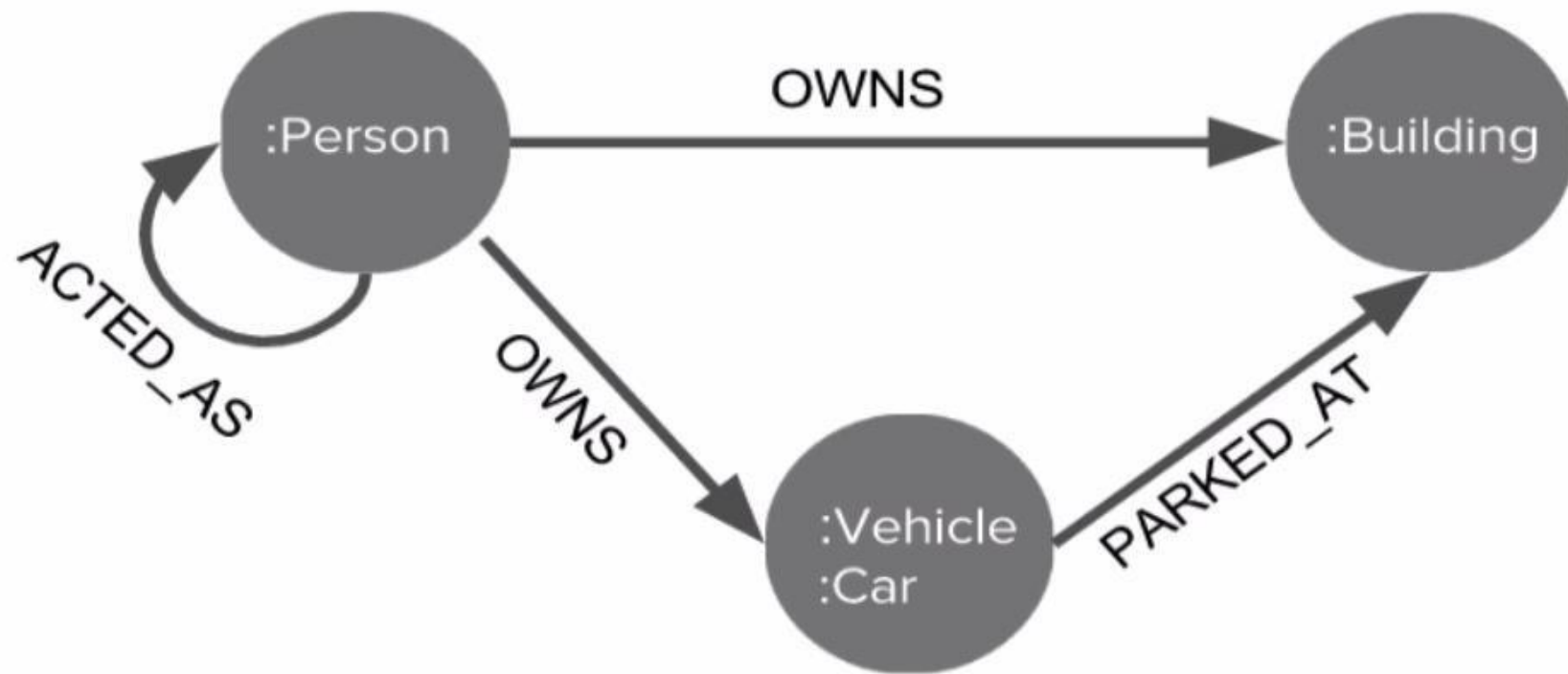
Es una **base de datos de código abierto NoSQL**
Implementada en Java y Scala

Casos de uso

Matchmaking, gestión de redes, análisis de software, investigación científica, enrutamiento, organización y gestión de proyectos, recomendaciones, redes sociales y mucho más.



Colección de Nodos y Relaciones



Qué es un grafo?

- Colección de Nodos y Relaciones



:Person



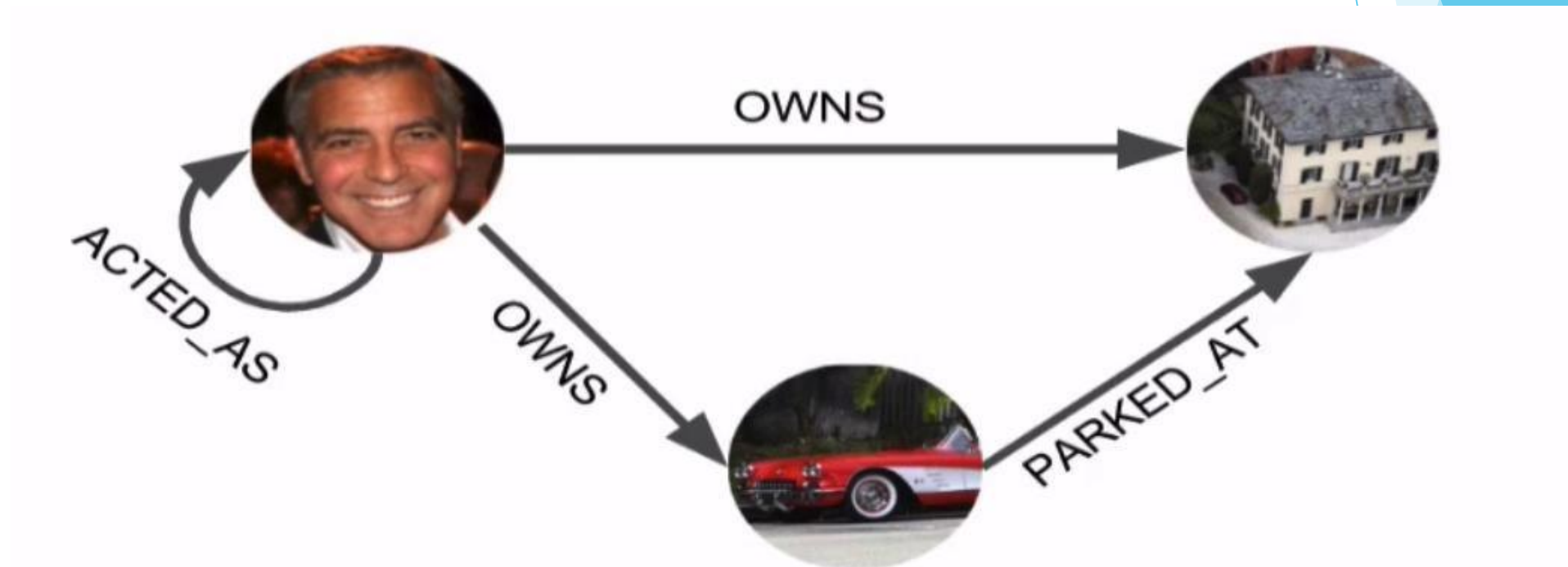
:Building



:Vehicle
:Car

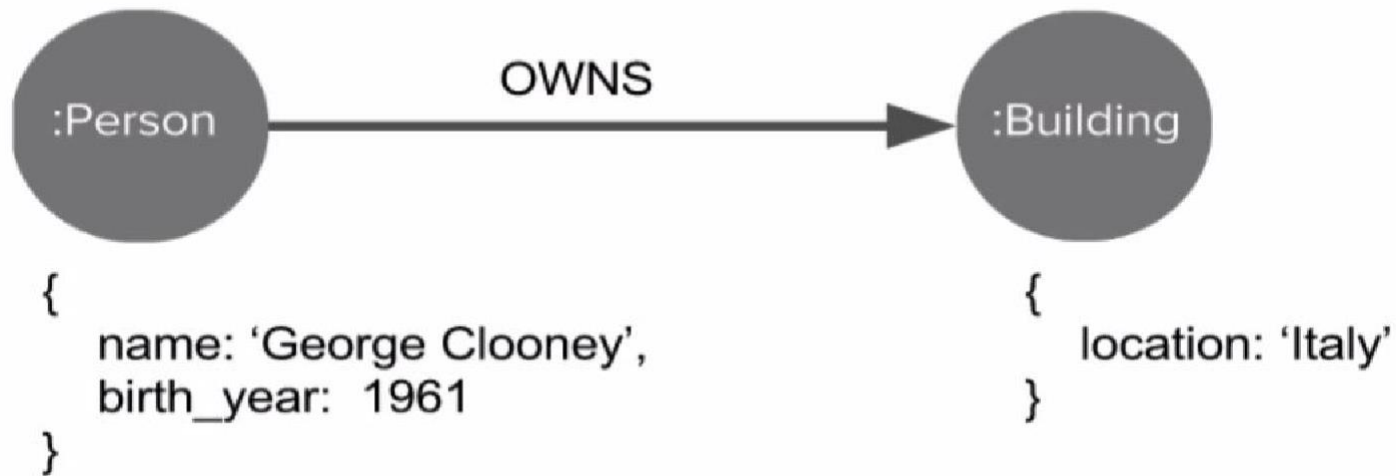
Propiedades

- Colección de Nodos y Relaciones



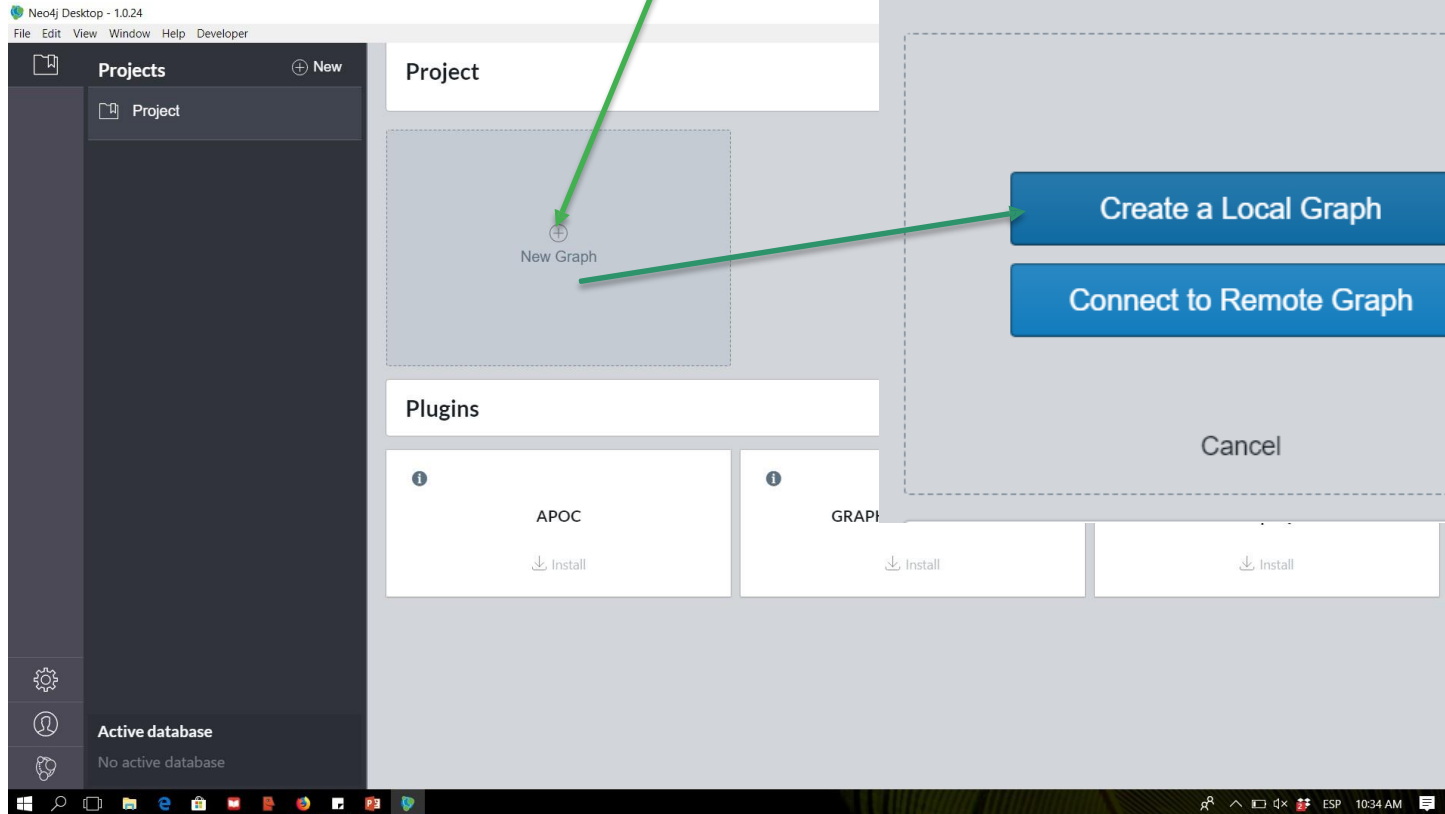
Propiedades

► Colección de Nodos y Relaciones



Type	Example
Boolean	true, false
Text	"AKA string"
Numbers	123, 56.70
Lists	['must', 'be', 'same', 'type']

Crear nuevo Grafo



Project

Create a Local Graph

Connect to Remote Graph

Cancel

Database Name

Database

Set Password

.....

3.3.5 (latest)

Cancel

Create

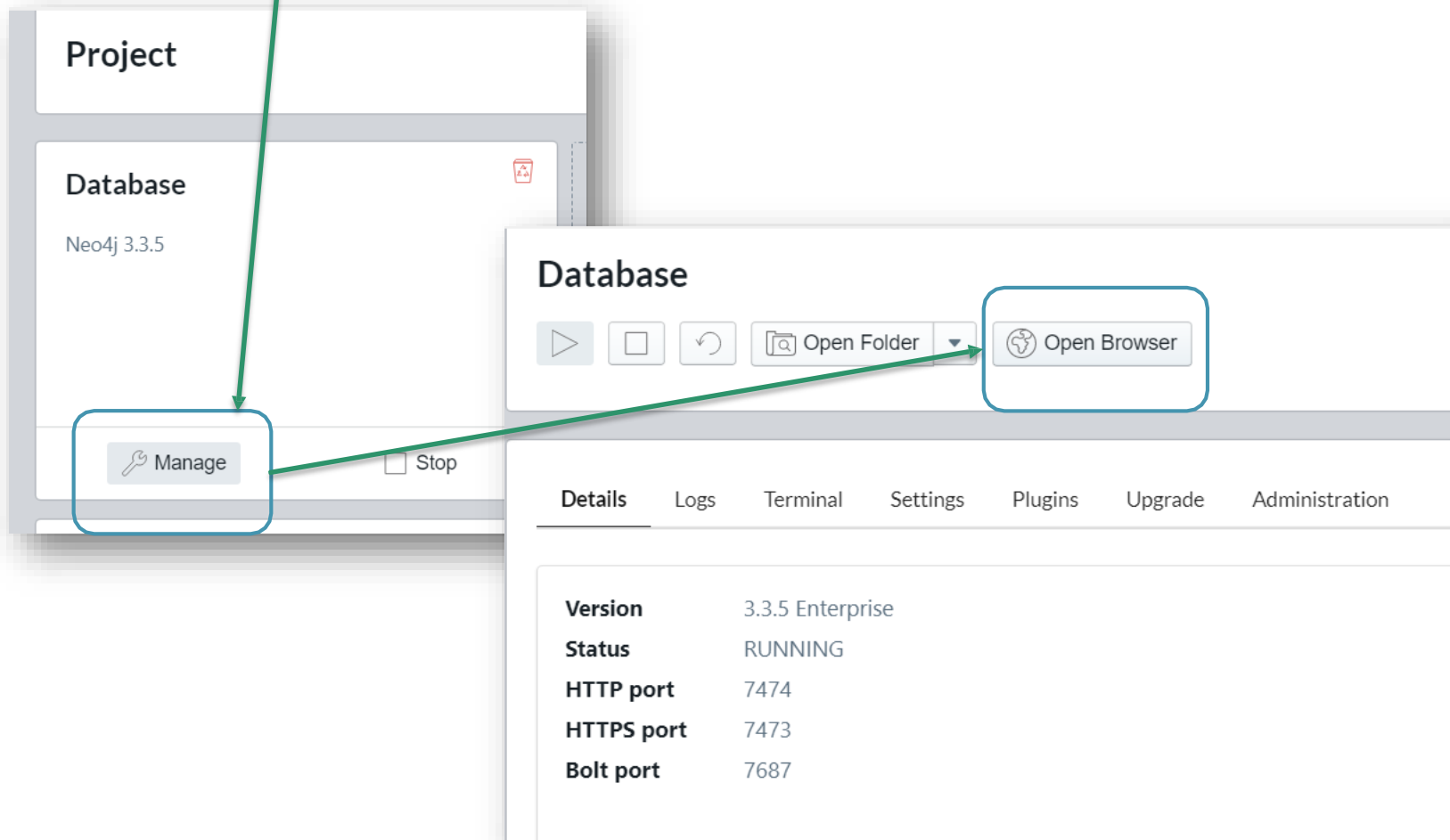
Database

Neo4j 3.3.5

Manage

Start

Abrir Neo4J



Empezar con Neo4j

The screenshot shows the Neo4j Browser interface in a web browser. The address bar shows the URL `127.0.0.1:7474/browser/`. The browser's search bar contains the text `Buscar`. The main content area is titled `$:play start` and features three panels:

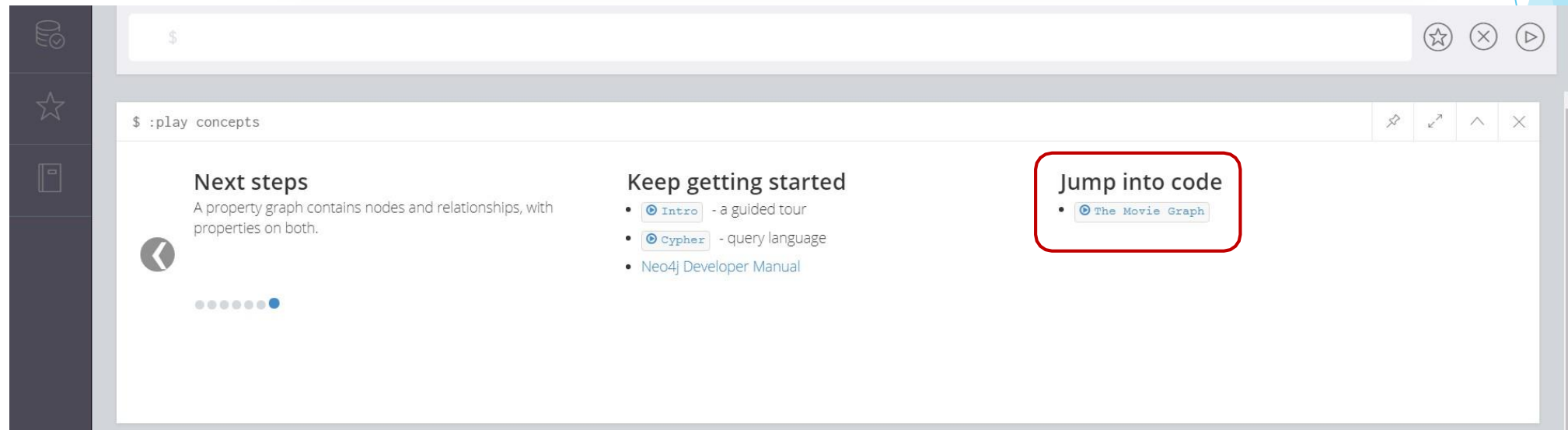
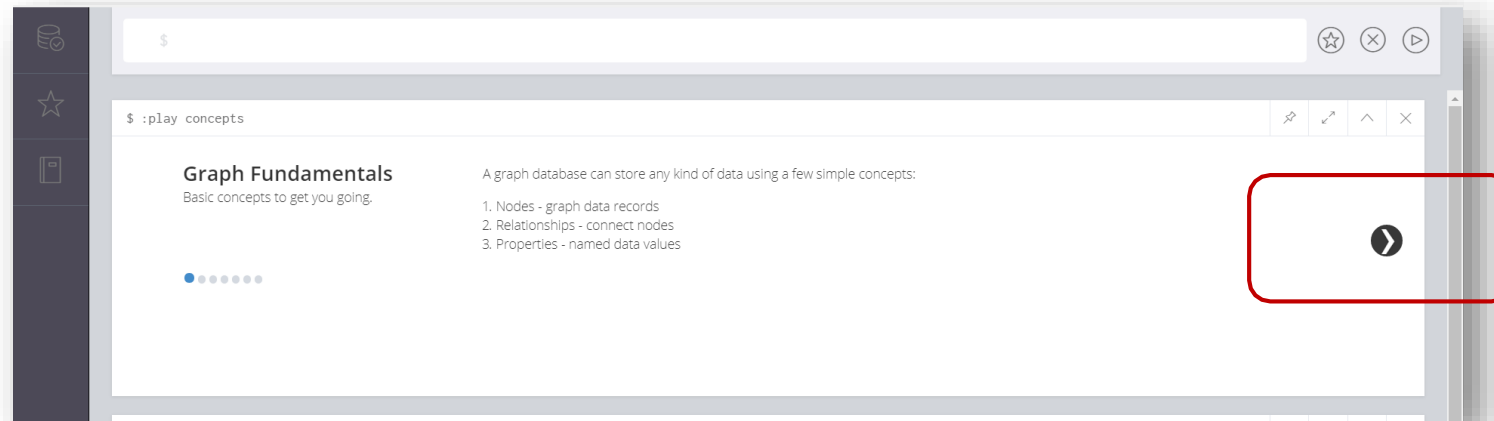
- Learn about Neo4j**: A graph epiphany awaits you. It includes a green graph icon and the text: "What is a graph database?", "How can I query a graph?", and "What do people do with Neo4j?". Below this is a blue button labeled `Start Learning`, which is highlighted with a red rectangular box.
- Jump into code**: Use Cypher, the graph query language. It includes a yellow code icon and the text: "Code walk-throughs" and "RDBMS to Graph". Below this is a blue button labeled `Write Code`.
- Monitor the system**: Key system health and status metrics. It includes a red heart icon and the text: "Disk utilization", "Cache activity", and "Cluster health and status". Below this is a blue button labeled `Monitor`.

At the bottom of the main content area, the text `Copyright © Neo Technology 2002-2017` is visible.

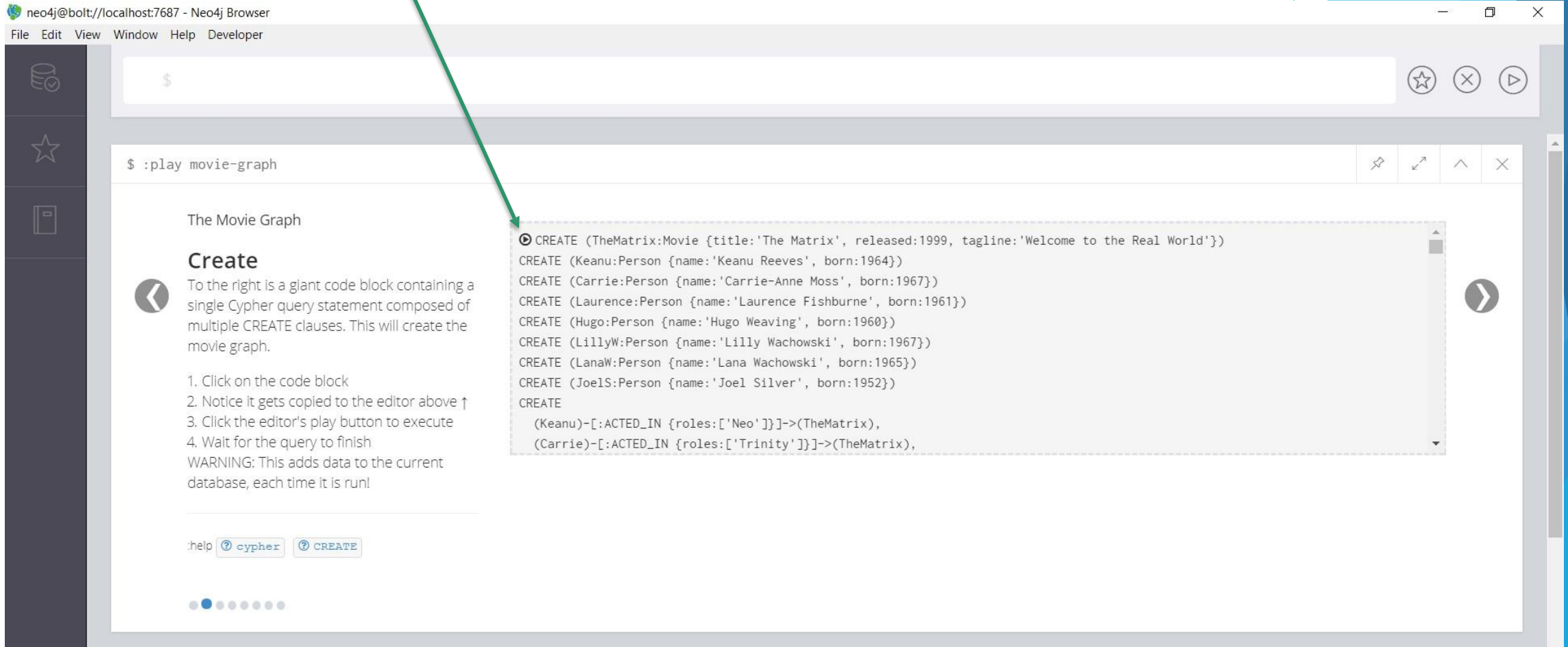
The bottom section of the interface is titled `$:server connect` and displays the following information:

- Connected to Neo4j**: Nice to meet you.
- You are connected as user `neo4j`
- to the server `bolt://127.0.0.1:7687`
- Connection credentials are stored in your web browser.

Empezar con Neo4J



Ejemplo Grafo de película The Matrix



The screenshot shows the Neo4j Browser interface. The browser window title is "neo4j@bolt://localhost:7687 - Neo4j Browser". The address bar shows a dollar sign "\$". The left sidebar contains icons for a database, a star, and a document. The main content area is titled "The Movie Graph" and "Create". It contains a list of instructions and a warning. A green arrow points from the title "Ejemplo Grafo de película The Matrix" to a code block containing a Cypher query. The query is as follows:

```
CREATE (TheMatrix:Movie {title:'The Matrix', released:1999, tagline:'Welcome to the Real World'})
CREATE (Keanu:Person {name:'Keanu Reeves', born:1964})
CREATE (Carrie:Person {name:'Carrie-Anne Moss', born:1967})
CREATE (Laurence:Person {name:'Laurence Fishburne', born:1961})
CREATE (Hugo:Person {name:'Hugo Weaving', born:1960})
CREATE (LillyW:Person {name:'Lilly Wachowski', born:1967})
CREATE (LanaW:Person {name:'Lana Wachowski', born:1965})
CREATE (JoelS:Person {name:'Joel Silver', born:1952})
CREATE
  (Keanu)-[:ACTED_IN {roles:['Neo']}]->(TheMatrix),
  (Carrie)-[:ACTED_IN {roles:['Trinity']}]->(TheMatrix),
```

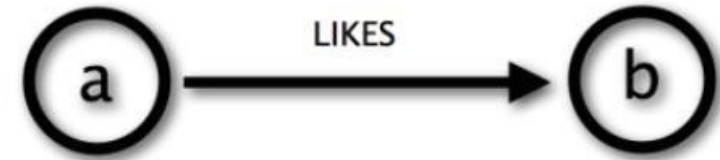
Below the instructions, there are buttons for "help", "cypher", and "CREATE". At the bottom, there is a progress indicator with six dots, the second of which is filled.

Lenguaje Cypher

- ▶ **CREATE**
- ▶ Create a node
- ▶ `CREATE (ee:Person { name: "Emil", from: "Sweden", klout: 99 })`

- ✓ **CREATE** indica la creación de un nuevo dato
- ✓ **()** parenthesis indica un nodo
- ✓ **ee:Person** 'ee' es la variable y la etiqueta 'Person' el nuevo nodo
- ✓ **{}** Llaves añaden propiedades al nodo

Cypher using relationship 'likes'



Cypher

`(a) -[:LIKES]-> (b)`

Lenguaje Cypher

Expresiones similares en SQL

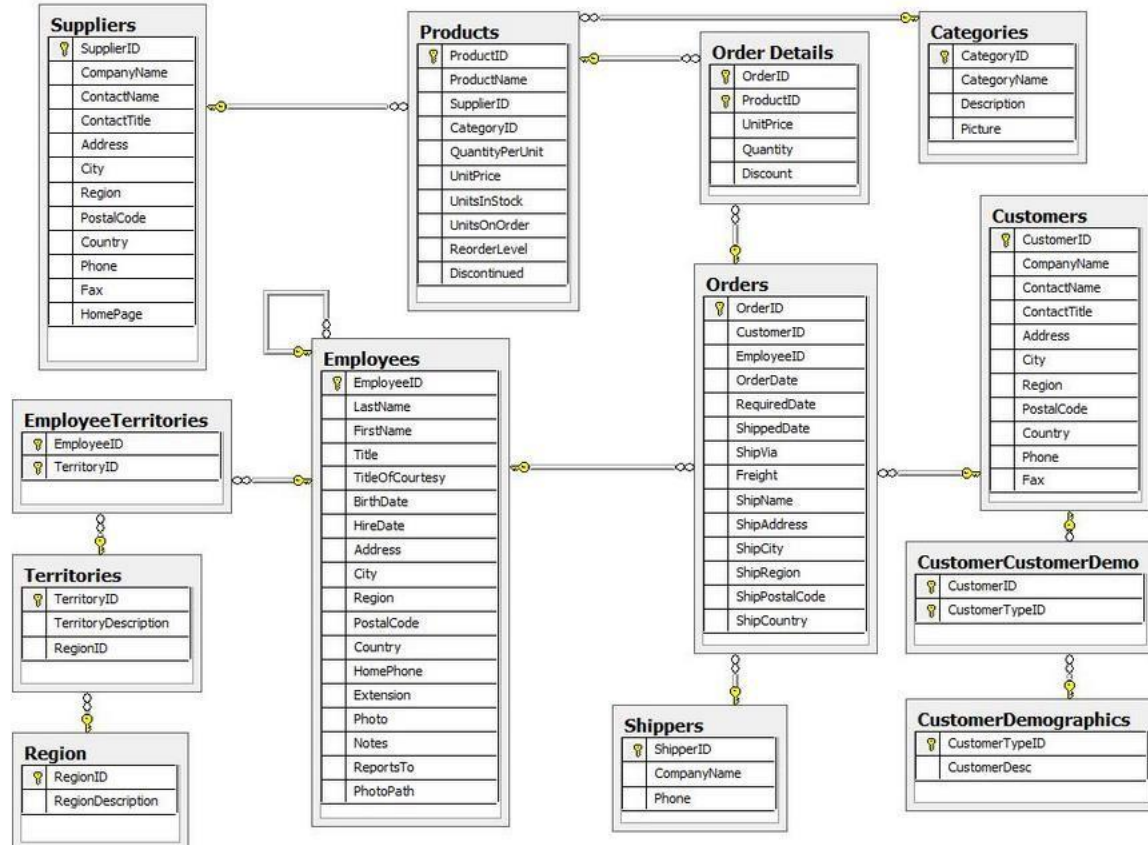
WHERE, ORDER BY, SKIP LIMIT, AND, p.unitPrice > 10

- ▶ **MATCH**
 - ▶ Equivalente a Select en SQL
 - ▶ `MATCH (ee:Person) WHERE ee.name = "Emil" RETURN ee;`
-
- ✓ **MATCH** especifica un patron de nodos y relaciones
 - ✓ **(ee:Person)** se refiere a los patrones de tipo Person de la variable ee
 - ✓ **WHERE** filtra los resultados
 - ✓ **ee.name** = "Emil" compara la propiedad de tipo name que coincide con "Emil"
 - ✓ **RETURN** solicita resultados específicos

Lenguaje Cypher

<https://neo4j.com/developer/guide-sql-to-cypher/>

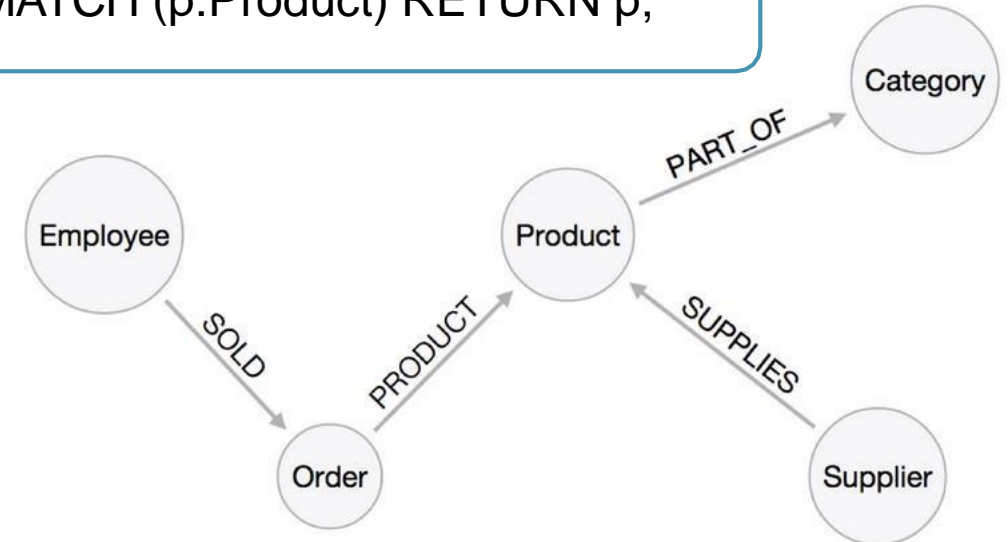
Relational model



```
SELECT * FROM products as p;
```

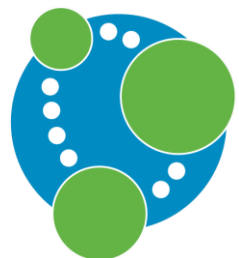
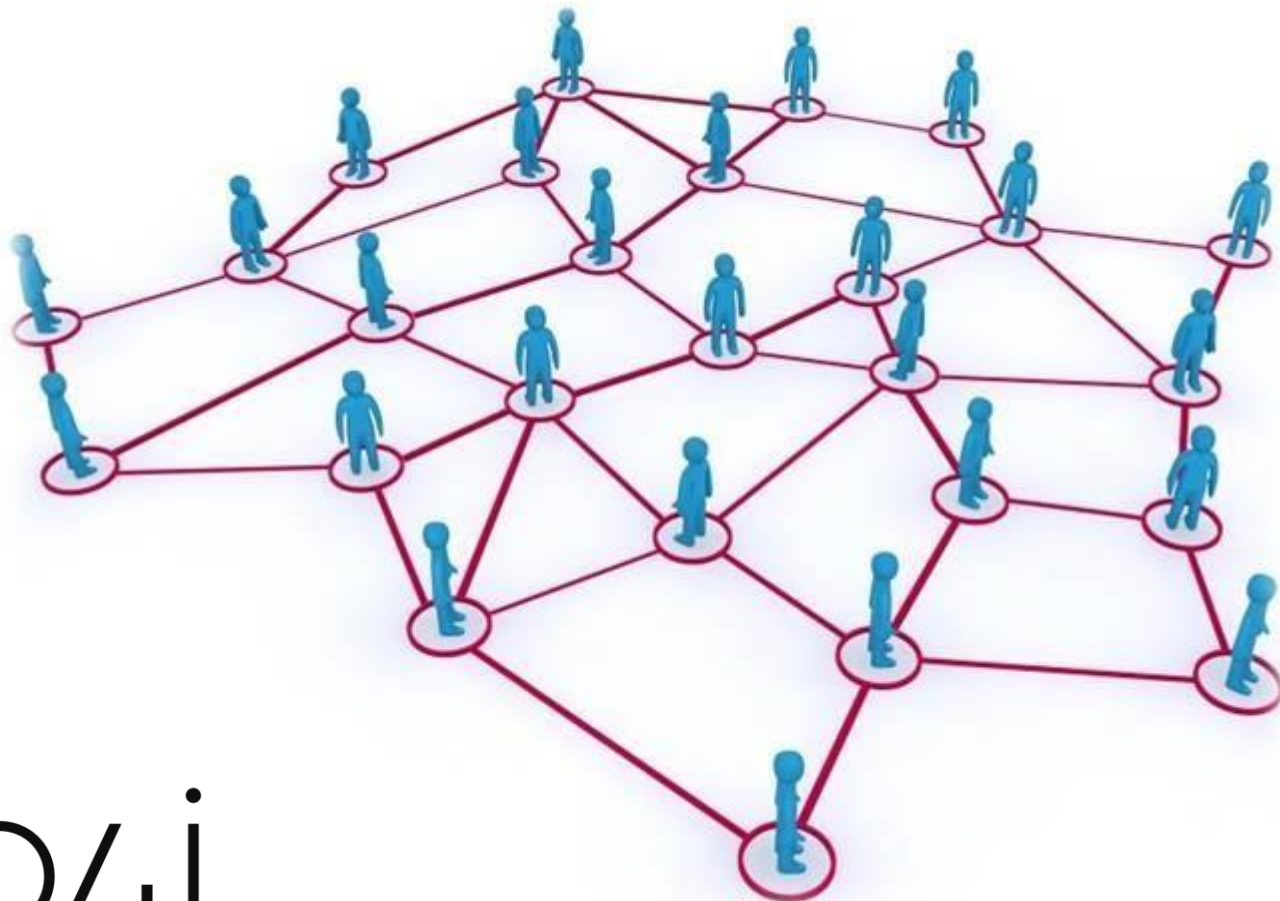
Graph Model

```
MATCH (p:Product) RETURN p;
```



Ejercicio

- ▶ Crear 3 nodos con 3 relaciones usando Cypher en Neo4J



neo4j

Muchas gracias