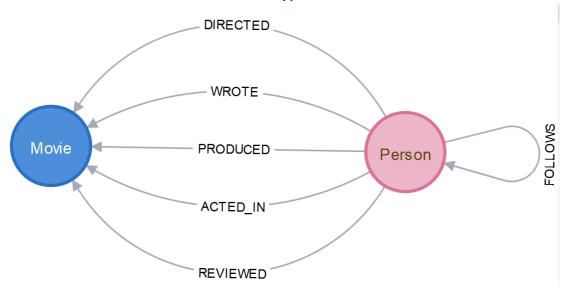# Table des matières

1 Charger le jeu de tests

Une fois connecté à votre base, charger le fichier **Movies.txt** par copier/coller

2 Description du graphe créé

En vous appuyant sur le contenu du fichier **Movies.txt**, Décrire le modèle de données du graphe :
- Lister les types (« labels ») de nœuds créés
- Lister les types (« labels ») de relations

Récupérer la structure du graphe ainsi créé
call db.schema.visualization()

Ce graphe inclut les deux nœuds suivants :
    call db.labels ();
- (type/label **Person**)
- (type/label **Movie**)

Le graphe inclut aussi les six relations suivantes:
    call db.relationshipTypes ;
- ACTED_IN
- DIRECTED,
- PRODUCED,
- WROTE,
- REVIEWED
- FOLLOWS.

3 Consultation du graphe

3.1 Afficher la liste des films (titre uniquement) classés par ordre alphabétique

```
MATCH (m:Movie) RETURN m.title ORDER BY m.title;
```

"A Few Good Men"
"A League of Their Own"
"Apollo 13"
"As Good as It Gets"
"Bicentennial Man"
"Cast Away"
"Charlie Wilson's War"
"Cloud Atlas"
"Frost/Nixon"
"Hoffa"
"Jerry Maguire"
"Joe Versus the Volcano"
"Johnny Mnemonic"
"Ninja Assassin"
"One Flew Over the Cuckoo's Nest"
"RescueDawn"
"Sleepless in Seattle"
"Snow Falling on Cedars"
"Something's Gotta Give"
"Speed Racer"
"Stand By Me"
"That Thing You Do"
"The Birdcage"
"The Da Vinci Code"

"The Devil's Advocate"
"The Green Mile"
"The Matrix"
"The Matrix Reloaded"
"The Matrix Revolutions"
"The Polar Express"
"The Replacements"
"Top Gun"
"Twister"
"Unforgiven"
"V for Vendetta"
"What Dreams May Come"
"When Harry Met Sally"
"You've Got Mail"

3.2 Compter le nombre de nœuds par label
Utiliser la fonction count()
MATCH (n) RETURN count(labels(n)), labels(n);

```
+-------------------------------+
| count(labels(n)) | labels(n)  |
+-------------------------------+
| 38               | ["Movie"]  |
| 133              | ["Person"] |
+-------------------------------+
```

3.3 Compter le nombre de nœuds pour chaque relation du graphe
Classement par ordre decroissant
MATCH (n)-[r]->(m) RETURN type(r), count(*) ;

```
+------------------------+
| type(r)     | count(*) |
```

```
+----------------------+
| "ACTED_IN" | 172     |
| "DIRECTED" | 44      |
| "PRODUCED" | 15      |
| "WROTE"    | 10      |
| "FOLLOWS"  | 3       |
| "REVIEWED" | 9       |      |
+----------------------+
```

3.4 Afficher les attributs du nœud Keanu Reeves

```
MATCH (keanu:Person {name:'Keanu Reeves'})
RETURN keanu.name AS name, keanu.born AS born;
+----------------------+
| name           | born |
+----------------------+
| "Keanu Reeves" | 1964 |
+----------------------+
```

3.5 Afficher la liste des nœuds de type **Person** limité à 5 nœuds

```
MATCH (people:Person)
RETURN people
LIMIT 5;
+-------------------------------------------------------+
| people                                                |
+-------------------------------------------------------+
| (:Person {name: "Keanu Reeves", born: 1964})          |
| (:Person {name: "Carrie-Anne Moss", born: 1967})      |
| (:Person {name: "Laurence Fishburne", born: 1961})    |
| (:Person {name: "Hugo Weaving", born: 1960})          |
| (:Person {name: "Lilly Wachowski", born: 1967})       |
+-------------------------------------------------------+
```

3.6 Afficher la liste des films limité à 5 (passer les 20 premiers)

Classement par ordre alphabétique

```
MATCH (m:Movie) return m.title order by m.title SKIP 20 LIMIT 5 ;
```

m.title
"Stand By Me"
"That Thing You Do"
"The Birdcage"
"The Da Vinci Code"
"The Devil's Advocate"

3.7 Afficher la liste des noms des réalisateurs classés par ordre alphabétique croissant

```
MATCH (f) <-[:DIRECTED]- (a) RETURN DISTINCT a.name ORDER BY a.name asc;
```
OU
```
MATCH (a) -[:DIRECTED]-> (f) RETURN DISTINCT a.name ORDER BY a.name asc;
```

```
+------------------------+
| a.name                 |
+------------------------+
| "Cameron Crowe"        |
| "Chris Columbus"       |
| "Clint Eastwood"       |
| "Danny DeVito"         |
| "Frank Darabont"       |
| "Howard Deutch"        |
| "James L. Brooks"      |
| "James Marshall"       |
| "Jan de Bont"          |
| "John Patrick Stanley" |
| "Lana Wachowski"       |
| "Lilly Wachowski"      |
| "Mike Nichols"         |
| "Milos Forman"         |
| "Nancy Meyers"         |
```

```
| "Nora Ephron"       |
| "Penny Marshall"    |
| "Rob Reiner"        |
| "Robert Longo"      |
| "Robert Zemeckis"   |
| "Ron Howard"        |
| "Scott Hicks"       |
| "Taylor Hackford"   |
| "Tom Hanks"         |
| "Tom Tykwer"        |
| "Tony Scott"        |
| "Vincent Ward"      |
| "Werner Herzog"     |
+-----------------------+
```

3.8 Afficher le nom des films réalisés par Ron Howard

```
MATCH (f) <-[:DIRECTED]- (a)
WHERE a.name = 'Ron Howard'
RETURN f;
```
OU
```
MATCH (f) <-[:DIRECTED]- (a {name:'Ron Howard'}) RETURN f;
```

```
|f                                                                     |

|(:Movie {tagline: "Break The Codes",title: "The Da Vinci Code",release|
|d: 2006})                                                             |

|(:Movie {tagline: "400 million people were waiting for the truth.",tit|
|le: "Frost/Nixon",released: 2008})                                    |

|(:Movie {tagline: "Houston, we have a problem.",title: "Apollo 13",rel|
|eased: 1995})                                                         |
```

3.9 Afficher les films et l'acteur qui y joue et dont le nom comporte **Tom**

```
MATCH (f) <-[:ACTED_IN]- (a)
WHERE a.name contains "Tom"
RETURN f.title,a.name;
```

```
+-----------------------------------------------+
| f.title                  | a.name             |
+-----------------------------------------------+
| "A Few Good Men"         | "Tom Cruise"       |
| "Jerry Maguire"          | "Tom Cruise"       |
| "Top Gun"                | "Tom Cruise"       |
```

```
| "Top Gun"                  | "Tom Skerritt" |
| "Cast Away"                | "Tom Hanks"    |
| "Charlie Wilson's War"     | "Tom Hanks"    |
| "Apollo 13"                | "Tom Hanks"    |
| "The Green Mile"           | "Tom Hanks"    |
| "A League of Their Own"    | "Tom Hanks"    |
| "You've Got Mail"          | "Tom Hanks"    |
| "Sleepless in Seattle"     | "Tom Hanks"    |
| "Joe Versus the Volcano"   | "Tom Hanks"    |
| "The Polar Express"        | "Tom Hanks"    |
| "That Thing You Do"        | "Tom Hanks"    |
| "The Da Vinci Code"        | "Tom Hanks"    |
| "Cloud Atlas"              | "Tom Hanks"    |
+--------------------------------------------+
```

3.10 Afficher les films réalisés par **Row Howard** et dans lesquels jour **Tom Hanks**

Deux solutions possibles

```
MATCH (a1) - [:DIRECTED]-> (f) <- [:ACTED_IN] - (a2)
            WHERE a1.name= 'Ron Howard'
            AND a2.name = 'Tom Hanks'
            RETURN f;
```

OU

```
MATCH (a1{name:'Ron Howard'})-[:DIRECTED]->(f)<-[:ACTED_IN]—(a2
{name:'Tom Hanks'}) RETURN f;
```

```
|f                                                                    |

(:Movie {tagline: "Break The Codes",title: "The Da Vinci Code",release
d: 2006})

(:Movie {tagline: "Houston, we have a problem.",title: "Apollo 13",rel
eased: 1995})
```

3.11 Afficher les noms des personnes qui ont travaillées sur le film **When Harry Met Sally**

```
MATCH (a:Person) - [r:DIRECTED|WROTE|PRODUCED|ACTED_IN]-> (f:Movie)
WHERE f.title = 'When Harry Met Sally' RETURN a.name,r;
```
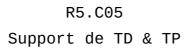
a.name	r
"Rob Reiner"	[:DIRECTED]
"Carrie Fisher"	[:ACTED_IN {roles: ["Marie"]}]
"Rob Reiner"	[:PRODUCED]
"Nora Ephron"	[:PRODUCED]
"Billy Crystal"	[:ACTED_IN {roles: ["Harry Burns"]}]
"Bruno Kirby"	[:ACTED_IN {roles: ["Jess"]}]
"Meg Ryan"	[:ACTED_IN {roles: ["Sally Albright"]}]
"Nora Ephron"	[:WROTE]

3.12 Retrouver les films dans lesquels le réalisateur y est aussi acteur

```
Afficher le nom du film et le nom de la personne trouvée
Trois solutions possibles

MATCH (p:Person) -[d:DIRECTED] -> (m:Movie) <- [a:ACTED_IN]- (p:Person)
RETURN p.name, m.title;
```
∠
```
MATCH (p) -[d:DIRECTED] -> (m:Movie) <- [a:ACTED_IN]- (p)
RETURN p.name, m.title;
```
OU
```
MATCH (p:Person) -[r1:ACTED_IN]-> (f:Movie)
WITH p as acteur, f as film
MATCH (acteur) -[r2:DIRECTED]-> (film)
RETURN acteur.name, film.title;
```
OU
```
MATCH (p:Person) -[r1:ACTED_IN]-> (f:Movie), (p) -[r2:DIRECTED]-> (f)
RETURN p.name, f.title;
```

p.name	m.title
"Tom Hanks"	"That Thing You Do"

```
| "Clint Eastwood" | "Unforgiven"          |
| "Danny DeVito"   | "Hoffa"               |
+----------------------------------------+
```

3.13 Récupérer les personnes (nom et âge) qui sont nées dans les années 80

```
MATCH (bornInEighties:Person)
WHERE bornInEighties.born >= 1980 AND bornInEighties.born < 1990
RETURN bornInEighties.name as name, bornInEighties.born as born
ORDER BY born DESC;
```

```
+-------------------------+
| name              | born |
+-------------------------+
| "Emile Hirsch"    | 1985 |
| "Rain"            | 1982 |
| "Natalie Portman" | 1981 |
| "Christina Ricci" | 1980 |
+-------------------------+
```

3.14 Afficher le(s) metteur(s) en scène du film **Matrix**

```
MATCH (m:Movie {title: 'The Matrix'})<-[d:DIRECTED]-(p:Person)
RETURN p.name as director;
```

```
+-------------------+
| director          |
+-------------------+
| "Lana Wachowski"  |
| "Lilly Wachowski" |
+-------------------+
```

3.15 Liste des acteurs ayant un joué un des films de la trilogie 'Matrix'

```
MATCH (m) <-[:ACTED_IN]- (a)
WHERE m.title CONTAINS 'Matrix'
RETURN m.title, a.name;
```

```
+----------------------------------------------------+
| m.title              | a.name                      |
+----------------------------------------------------+
| "The Matrix"         | "Emil Eifrem"               |
| "The Matrix"         | "Hugo Weaving"              |
| "The Matrix"         | "Laurence Fishburne"        |
| "The Matrix"         | "Carrie-Anne Moss"          |
| "The Matrix"         | "Keanu Reeves"              |
```

```
| "The Matrix Reloaded"    | "Hugo Weaving"         |
| "The Matrix Reloaded"    | "Laurence Fishburne"   |
| "The Matrix Reloaded"    | "Carrie-Anne Moss"     |
| "The Matrix Reloaded"    | "Keanu Reeves"         |
| "The Matrix Revolutions" | "Hugo Weaving"         |
| "The Matrix Revolutions" | "Laurence Fishburne"   |
| "The Matrix Revolutions" | "Carrie-Anne Moss"     |
| "The Matrix Revolutions" | "Keanu Reeves"         |
+---------------------------------------------------+
```

3.16 Afficher toutes les relations qui relient **Tom Hanks** à des films

```
MATCH (tom:Person {name:'Tom Hanks'})-[r]->(m:Movie)
RETURN type(r) AS type, m.title AS movie;
```

```
+------------------------------------------+
| type        | movie                      |
+------------------------------------------+
| "ACTED_IN"  | "Cast Away"                |
| "ACTED_IN"  | "Charlie Wilson's War"     |
| "DIRECTED"  | "That Thing You Do"        |
| "ACTED_IN"  | "Apollo 13"                |
| "ACTED_IN"  | "The Green Mile"           |
| "ACTED_IN"  | "A League of Their Own"    |
| "ACTED_IN"  | "You've Got Mail"          |
| "ACTED_IN"  | "Sleepless in Seattle"     |
| "ACTED_IN"  | "Joe Versus the Volcano"   |
| "ACTED_IN"  | "The Polar Express"        |
| "ACTED_IN"  | "That Thing You Do"        |
| "ACTED_IN"  | "The Da Vinci Code"        |
| "ACTED_IN"  | "Cloud Atlas"              |
+------------------------------------------+
```

3.17 Afficher toutes les relations (**sauf ACTED_IN**)qui relient **Tom Hanks** à des films

```
MATCH (:Person {name:'Tom Hanks'})-[r:!ACTED_IN]->(m:Movie)
Return type(r) AS type, m.title AS movies;
```

```
+----------------------------------+
| type       | movies              |
+----------------------------------+
| "DIRECTED" | "That Thing You Do" |
+----------------------------------+
```