neo4j

December 8, 2021

```
[1]: from py2neo import Graph
```

```
[2]: graph = Graph("http://localhost:7474", auth=("neo4j", "123456"))
```

```
[3]: # 1 Find all Producers that produced the movie When Harry Met Sally
     results = graph.run("match (movie:Movie {title:'When Harry Met Sally'})-[r:
      ↪PRODUCED]-(person:Person) return person.name")
```

```
[4]: for name in results:
         print(name)
```

```
'Nora Ephron'
'Rob Reiner'
```

```
[5]: # 2 Find directors who have directed more than 2 movies
     results = graph.run("match (person:Person)-[r:DIRECTED]-(movie:Movie) with␣
      ↪person, count(*) as cnt where cnt > 2 return person.name")
```

```
[6]: for name in results:
         print(name)
```

```
'Lana Wachowski'
'Andy Wachowski'
'Rob Reiner'
'Ron Howard'
```

```
[7]: # 3 Find the actors with 5+ movies, and the movies in which they acted
     results = graph.run("match (person:Person)-[r:ACTED_IN]-(movie:Movie) with␣
      ↪person, count(*) as cnt where cnt >= 5 match (person:Person)-[r:
      ↪ACTED_IN]-(movie:Movie) return person.name, movie.title")
```

```
[8]: for name, title in results:
         print(name, '\t', title)
```

```
Hugo Weaving      Cloud Atlas
Hugo Weaving      V for Vendetta
Hugo Weaving      The Matrix Revolutions
Hugo Weaving      The Matrix Reloaded
```

```
Hugo Weaving       The Matrix
Keanu Reeves       Something's Gotta Give
Keanu Reeves       The Replacements
Keanu Reeves       Johnny Mnemonic
Keanu Reeves       The Devil's Advocate
Keanu Reeves       The Matrix Revolutions
Keanu Reeves       The Matrix Reloaded
Keanu Reeves       The Matrix
Jack Nicholson     As Good as It Gets
Jack Nicholson     One Flew Over the Cuckoo's Nest
Jack Nicholson     Something's Gotta Give
Jack Nicholson     Hoffa
Jack Nicholson     A Few Good Men
Meg Ryan           Sleepless in Seattle
Meg Ryan           You've Got Mail
Meg Ryan           Top Gun
Meg Ryan           When Harry Met Sally
Meg Ryan           Joe Versus the Volcano
Tom Hanks          Apollo 13
Tom Hanks          You've Got Mail
Tom Hanks          A League of Their Own
Tom Hanks          Joe Versus the Volcano
Tom Hanks          That Thing You Do
Tom Hanks          The Da Vinci Code
Tom Hanks          Cloud Atlas
Tom Hanks          Cast Away
Tom Hanks          The Green Mile
Tom Hanks          Sleepless in Seattle
Tom Hanks          The Polar Express
Tom Hanks          Charlie Wilson's War
```

[9]:
```python
# 4 Movies and actors exactly 3 "hops" away from the movie Hoffa
results = graph.run("match (p)-[*3]-(movie:Movie {title:'Hoffa'}) return
 ↪distinct p")
```

[10]:
```python
for record in results:
    node = record['p']
    if node.has_label('Person'):
        print("Actor:", node['name'])
    elif node.has_label('Movie'):
        print('Movie:', node['title'])
```

```
Actor: John C. Reilly
Actor: J.T. Walsh
Actor: Jack Nicholson
Actor: Milos Forman
Actor: James Marshall
Actor: Kevin Pollak
```

```
Actor: Aaron Sorkin
Actor: Cuba Gooding Jr.
Actor: Christopher Guest
Actor: Rob Reiner
Actor: Noah Wyle
Actor: Kiefer Sutherland
Actor: Kevin Bacon
Actor: Demi Moore
Actor: Tom Cruise
Actor: Helen Hunt
Actor: Greg Kinnear
Actor: James L. Brooks
Actor: Danny DeVito
Actor: Keanu Reeves
Actor: Nancy Meyers
Actor: Diane Keaton
```

[11]:
```python
# 5 Find all actors who have also directed movies and the movies that they
 ↪directed
results = graph.run("match (person:Person)-[r:ACTED_IN]-(movie1:Movie) with
 ↪person match (person:Person)-[r:DIRECTED]-(movie2:Movie) return distinct
 ↪person.name, movie2.title")
```

[12]:
```python
for name, title in results:
    print(name, '\t', title)
```

```
Tom Hanks        That Thing You Do
Werner Herzog    RescueDawn
Clint Eastwood   Unforgiven
James Marshall   V for Vendetta
James Marshall   Ninja Assassin
Danny DeVito     Hoffa
```

Provide 5 additional queries and indicate the specific business use cases they address

[13]:
```python
# 1.Find all movies released between 1980 and 2000
results = graph.run("match (n:Movie) where n.released > 1980 and n.released <
 ↪2000 return n.title")
```

[14]:
```python
for name in results:
    print(name)
```

```
'The Matrix'
"The Devil's Advocate"
'A Few Good Men'
'Top Gun'
'Stand By Me'
'As Good as It Gets'
```

```
'What Dreams May Come'
'Snow Falling on Cedars'
"You've Got Mail"
'Sleepless in Seattle'
'Joe Versus the Volcano'
'When Harry Met Sally'
'That Thing You Do'
'The Birdcage'
'Unforgiven'
'Johnny Mnemonic'
'The Green Mile'
'Hoffa'
'Apollo 13'
'Twister'
'Bicentennial Man'
'A League of Their Own'
```

[15]:
```python
# 2.Find the youngest actor in the movie Cloud Atlas
results = graph.run("match (p:Person)-[r:ACTED_IN]-(m:Movie {title:'Cloud␣
 ↪Atlas'}) return p.name order by p.born Desc limit 1")
```

[16]:
```python
for name in results:
    print(name)
```

```
'Halle Berry'
```

[17]:
```python
# 3.Find top 10 average rating movies
results = graph.run("MATCH (p:Person)-[r:REVIEWED]->(m:Movie) with m, avg(r.
 ↪rating) as avg_score RETURN m.title, avg_score order by avg_score DESC limit␣
 ↪10")
```

[18]:
```python
for title, score in results:
    print(title, '\t', score)
```

```
Cloud Atlas      95.0
Jerry Maguire    92.0
Unforgiven       85.0
The Replacements         75.66666666666667
The Da Vinci Code        66.5
The Birdcage     45.0
```

[19]:
```python
# 4.Find all roles that Tom Hanks played
results = graph.run("match (p:Person {name:'Tom Hanks'})-[r:ACTED_IN]-(m:Movie)␣
 ↪return p.name, m.title, r.roles")
```

[20]:
```python
for name, title, role in results:
    print(name, '\t', title, '\t', role)
```

```
Tom Hanks          Apollo 13          ['Jim Lovell']
Tom Hanks          You've Got Mail          ['Joe Fox']
Tom Hanks          A League of Their Own   ['Jimmy Dugan']
Tom Hanks          Joe Versus the Volcano          ['Joe Banks']
Tom Hanks          That Thing You Do          ['Mr. White']
Tom Hanks          The Da Vinci Code          ['Dr. Robert Langdon']
Tom Hanks          Cloud Atlas     ['Zachry', 'Dr. Henry Goose', 'Isaac Sachs',
'Dermot Hoggins']
Tom Hanks          Cast Away          ['Chuck Noland']
Tom Hanks          The Green Mile          ['Paul Edgecomb']
Tom Hanks          Sleepless in Seattle    ['Sam Baldwin']
Tom Hanks          The Polar Express          ['Hero Boy', 'Father', 'Conductor',
'Hobo', 'Scrooge', 'Santa Claus']
Tom Hanks          Charlie Wilson's War    ['Rep. Charlie Wilson']
```

[21]:
```python
# 5.Find the movie that has the most people took part in
results = graph.run("match (m:Movie)-[r:WROTE|ACTED_IN|DIRECTED|PRODUCED]-(p:
 ↪Person) with m, count(*) as cnt return m.title, cnt order by cnt Desc limit␣
 ↪1")
```

[22]:
```python
for name, cnt in results:
    print(name, '\t', cnt)
```

```
A Few Good Men    14
```

[ ]: