

W205 Lab 9

Cynthia Hu

7/22/2017

1. What is the shortest path between 'DR. STRANGE/STEPHEN' and 'DR. DOOM/VICTOR VON'?

Please provide: the query, the Text side tab results of running the query, and the answer.

Query:

```
MATCH p=(stephen:Hero {name: 'DR. STRANGE/STEPHEN' })-[:APPEARED*0..2]-(victor:Hero
{name: 'DR. DOOM/VICTOR VON'})
RETURN p, length(p)
ORDER BY length(p)
LIMIT 2
```

Tab Results:

"p"	"length (p) "
[{"name": "DR. STRANGE/STEPHEN", "degree": 777}, {"w": 12}, {"name": "DR. DOOM/VICTOR VON", "degree": 441}]	1
[{"name": "DR. STRANGE/STEPHEN", "degree": 777}, {"w": 8}, {"name": "DR. DOOM/VICTOR VON", "degree": 441}]	1

Answer:

Shortest path is length 1.

2. List the 5 shortest paths between 'DR. STRANGE/STEPHEN' and 'DR. DOOM/VICTOR VON'.

Please provide: the query and the Text side tab results of running the query.

Only provide 5 even if there are ties (hint: use the LIMIT 5 clause in the query).

Query:

```
MATCH p=(stephen:Hero {name: 'DR. STRANGE/STEPHEN' })-[:APPEARED*0..2]-(victor:Hero
{name: 'DR. DOOM/VICTOR VON'})
RETURN p, length(p)
ORDER BY length(p)
LIMIT 5
```

Tab Results:

"p"	"length(p) "
[{"name":"DR. STRANGE/STEPHEN","degree":777},{ "w":12},{ "name":"DR. DOOM/VICTOR VON","degree":441}]	1
[{"name":"DR. STRANGE/STEPHEN","degree":777},{ "w":8},{ "name":"DR. DOOM/VICTOR VON","degree":441}]	1
[{"name":"DR. STRANGE/STEPHEN","degree":777},{ "w":8},{ "name":"RICHARDS, FRANKLIN B","degree":472},{ "name":"RICHARDS, FRANKLIN B","degree":472},{ "w":15},{ "name":"DR. DOOM/VICTOR VON","degree":441}]	2
[{"name":"DR. STRANGE/STEPHEN","degree":777},{ "w":6},{ "name":"RICHARDS, FRANKLIN B","degree":472},{ "name":"RICHARDS, FRANKLIN B","degree":472},{ "w":15},{ "name":"DR. DOOM/VICTOR VON","degree":441}]	2
[{"name":"DR. STRANGE/STEPHEN","degree":777},{ "w":4},{ "name":"STARFOX/EROS","degree":324},{ "name":"STARFOX/EROS","degree":324},{ "w":4},{ "name":"DR. DOOM/VICTOR VON","degree":441}]	2

3. List 5 Friends of Friends of 'COLOSSUS II/PETER RA' with the most connections.

Please provide: the query and the Text side tab results of running the query.

Only provide 5 even if there are ties (hint: use the LIMIT 5 clause in the query)

Query:

```
MATCH (peter:Hero { name: 'COLOSSUS II/PETER RA' })-[:APPEARED*2..2]-(friend_of_friend)
WHERE NOT (peter)-[:APPEARED]-(friend_of_friend)
AND friend_of_friend.name <> 'COLOSSUS II/PETER RA'
RETURN friend_of_friend.name, COUNT(*)
```

```
ORDER BY COUNT(*) DESC , friend_of_friend.name
```

```
Limit 5
```

Tab Results:

"friend_of_friend.name"	"COUNT (*) "
"WONG"	453
"MOONSTONE II/KARLA S"	370
"CARTER, PEGGY"	367
"POWER MAN/ERIK JOSTE"	350
"KINGPIN/WILSON FISK"	342

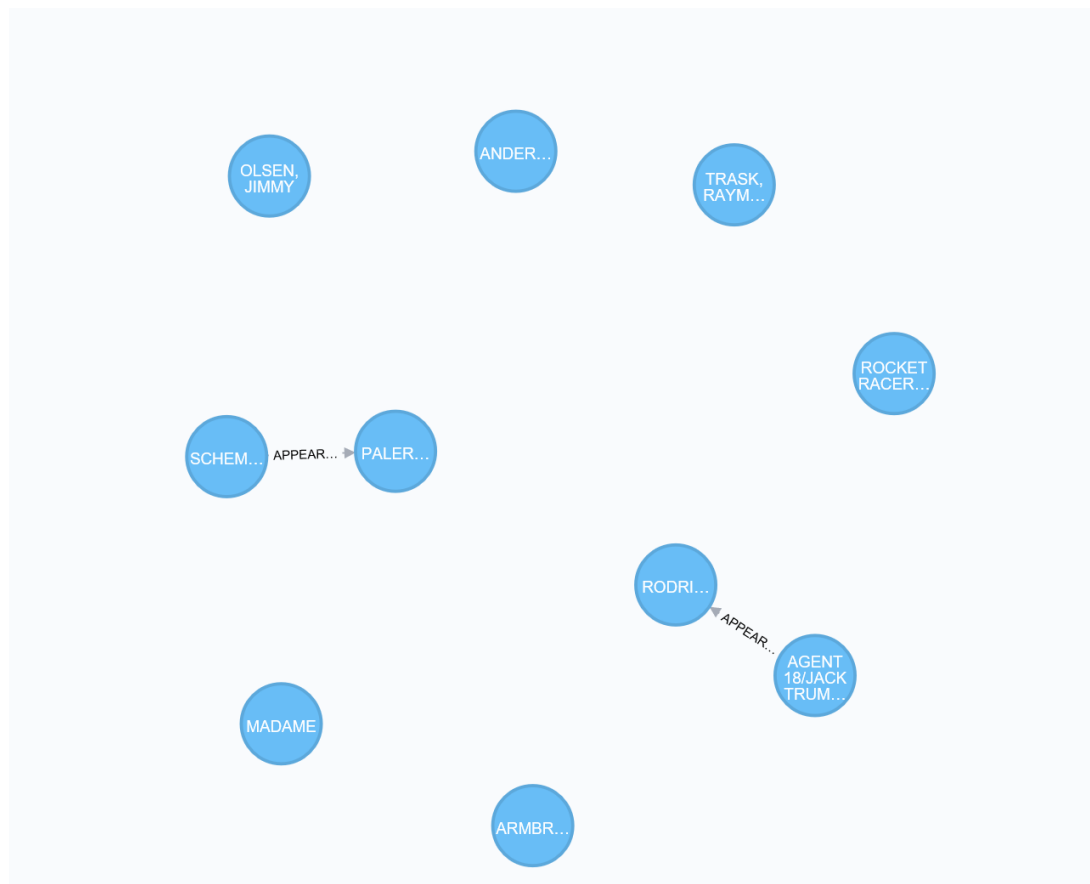
4. Visualize 10 Friends of friends for 'IRON MAN/TONY STARK'.

Please provide: the query and an image of the graph visualization. Only provide 10 even if there are ties (hint: use the LIMIT 10 clause in the query)

Query:

```
MATCH (tony:Hero { name: 'IRON MAN/TONY STARK'})-[:APPEARED*2..2]-(friend_of_friend)
WHERE NOT (tony)-[:APPEARED]-(friend_of_friend)
AND friend_of_friend.name <> 'IRON MAN/TONY STARK'
RETURN friend_of_friend
LIMIT 10
```

Graph:



5. Visually discover how the Avengers grew over time from 5 to 10 members, who was added to the team, and verify connectivity.

Please provide for each run of the query (6 total runs): The query, a list of member for this run, a statement as to whether or not the graph is fully **connected**, and the an image of the graph visualization

1) 5 members

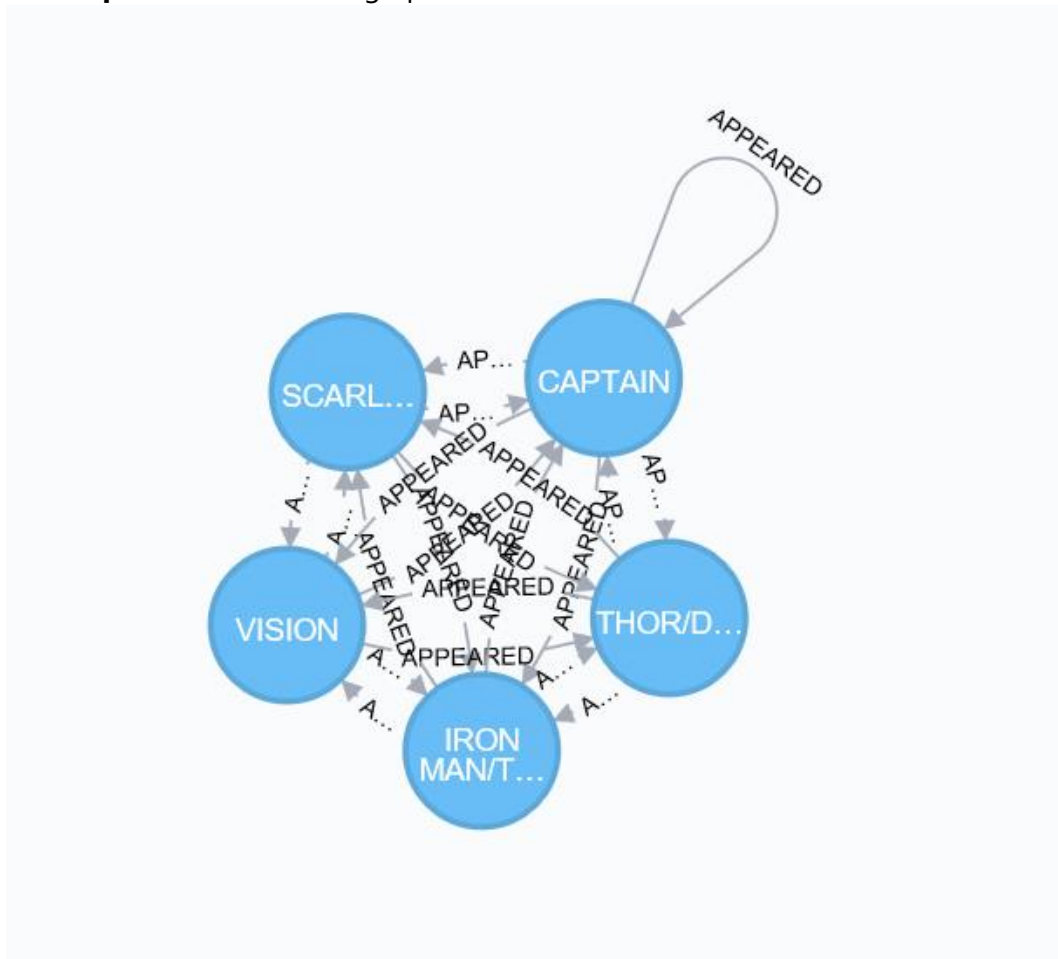
Query:

```
MATCH (tony:Hero {name:'IRON MAN/TONY STARK'}) -[e:APPEARED]-> (other) <-  
[f:APPEARED]- (donald:Hero {name:'THOR/DR. DONALD BLAK'})  
RETURN tony, donald, other  
ORDER BY e.w DESC, f.w DESC  
LIMIT 3
```

Members:

"tony"	"donald"	"other"
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "CAPTAIN AMERICA", "degree": 1426}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "SCARLET WITCH/WANDA", "degree": 1004}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "VISION", "degree": 919}

Graph: It's a connected graph.



2) 6 members

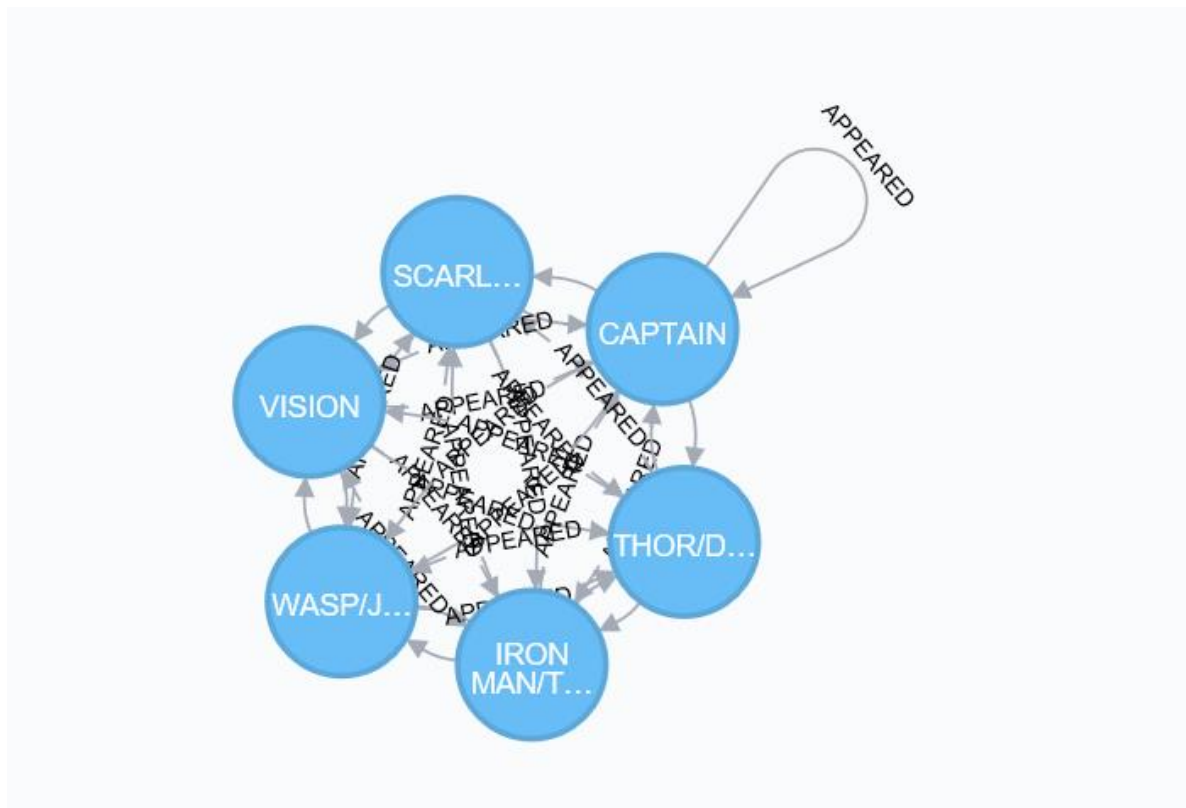
Query:

```
MATCH (tony:Hero {name:'IRON MAN/TONY STARK'}) -[e:APPEARED]-> (other) <-
[f:APPEARED]- (donald:Hero {name:'THOR/DR. DONALD BLAK'})
RETURN tony, donald, other
ORDER BY e.w DESC, f.w DESC
LIMIT 4
```

Members:

"tony"	"donald"	"other"
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "CAPTAIN AMERICA", "degree": 1426}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "SCARLET WITCH/WANDA", "degree": 1004}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "VISION", "degree": 919}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "WASP/JANET VAN DYNE", "degree": 778}

Graph: it's a connected graph.



3) 7 members

Query:

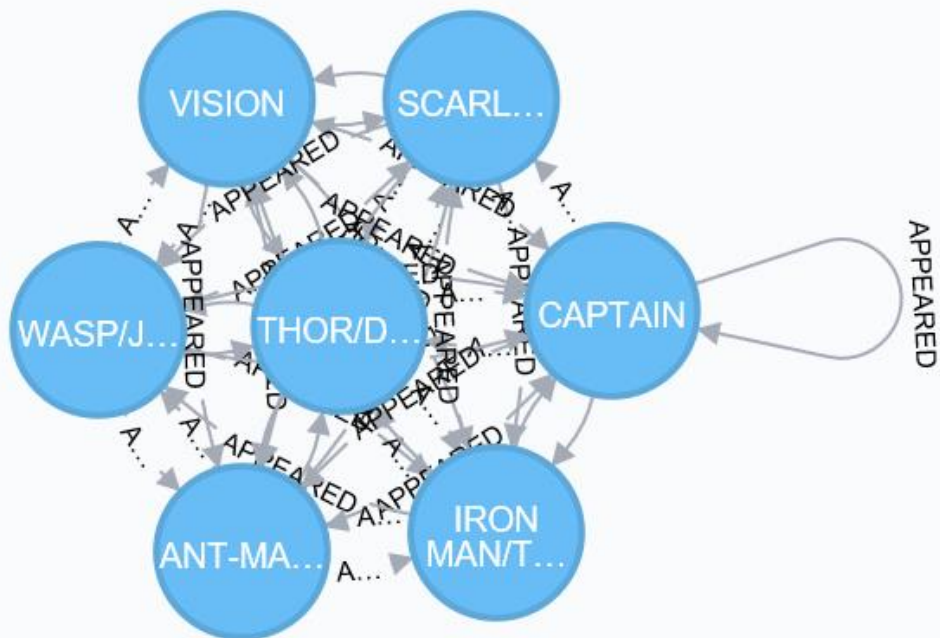
```
MATCH (tony:Hero {name:'IRON MAN/TONY STARK'}) -[e:APPEARED]-> (other) <-
[f:APPEARED]- (donald:Hero {name:'THOR/DR. DONALD BLAK'})
RETURN tony, donald, other
ORDER BY e.w DESC, f.w DESC

LIMIT 5
```

Members:

"tony"	"donald"	"other"
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "CAPTAIN AMERICA", "degree": 1426 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "SCARLET WITCH/WANDA", "degree": 1004 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "VISION", "degree": 919 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "WASP/JANET VAN DYNE", "degree": 778 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "ANT-MAN/DR. HENRY J.", "degree": 775 }

Graph: It's a connected graph.



4) 8 members

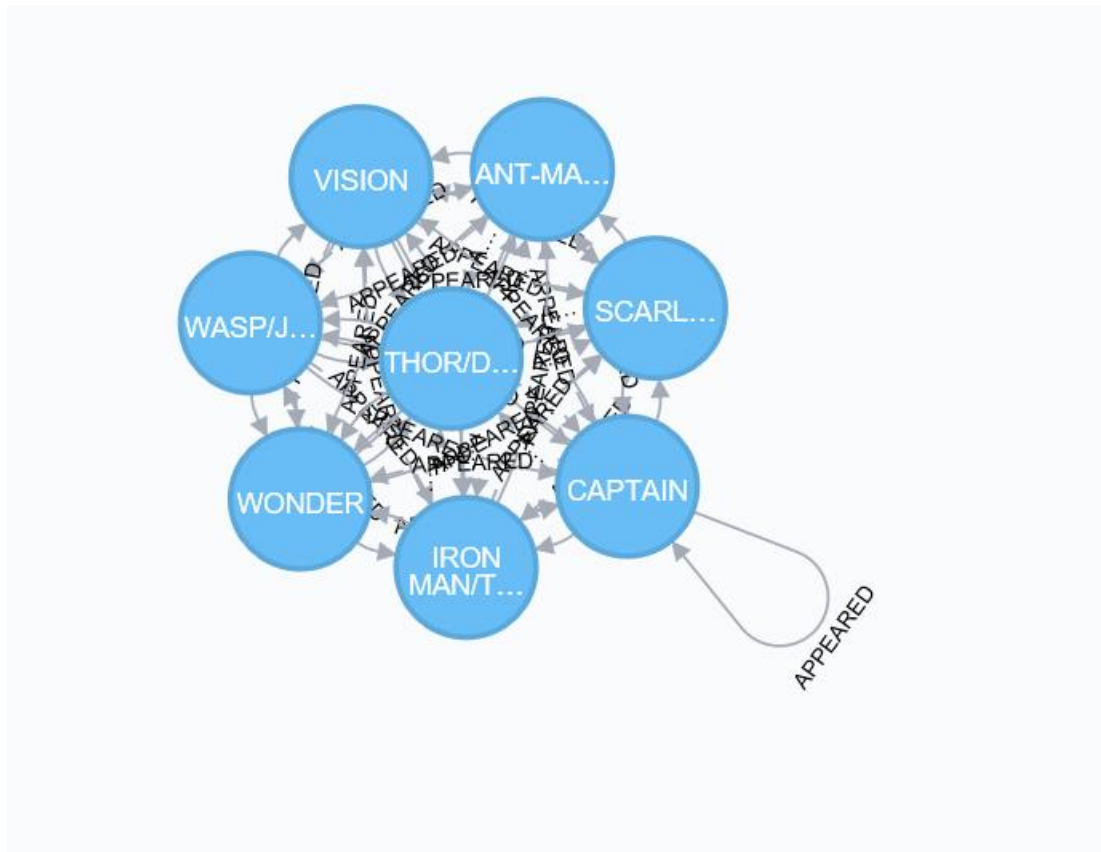
Query:

```
MATCH (tony:Hero {name:'IRON MAN/TONY STARK'}) -[e:APPEARED]-> (other) <-  
[f:APPEARED]- (donald:Hero {name:'THOR/DR. DONALD BLAK'})  
RETURN tony, donald, other  
ORDER BY e.w DESC, f.w DESC  
  
LIMIT 6
```

Members:

"tony"	"donald"	"other"
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "CAPTAIN AMERICA", "degree": 1426 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "SCARLET WITCH/WANDA", "degree": 1004 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "VISION", "degree": 919 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "WASP/JANET VAN DYNE", "degree": 778 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "ANT-MAN/DR. HENRY J.", "degree": 775 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "WONDER MAN/SIMON WIL", "degree": 729 }

Graph: It's a connected graph.



5) 9 members

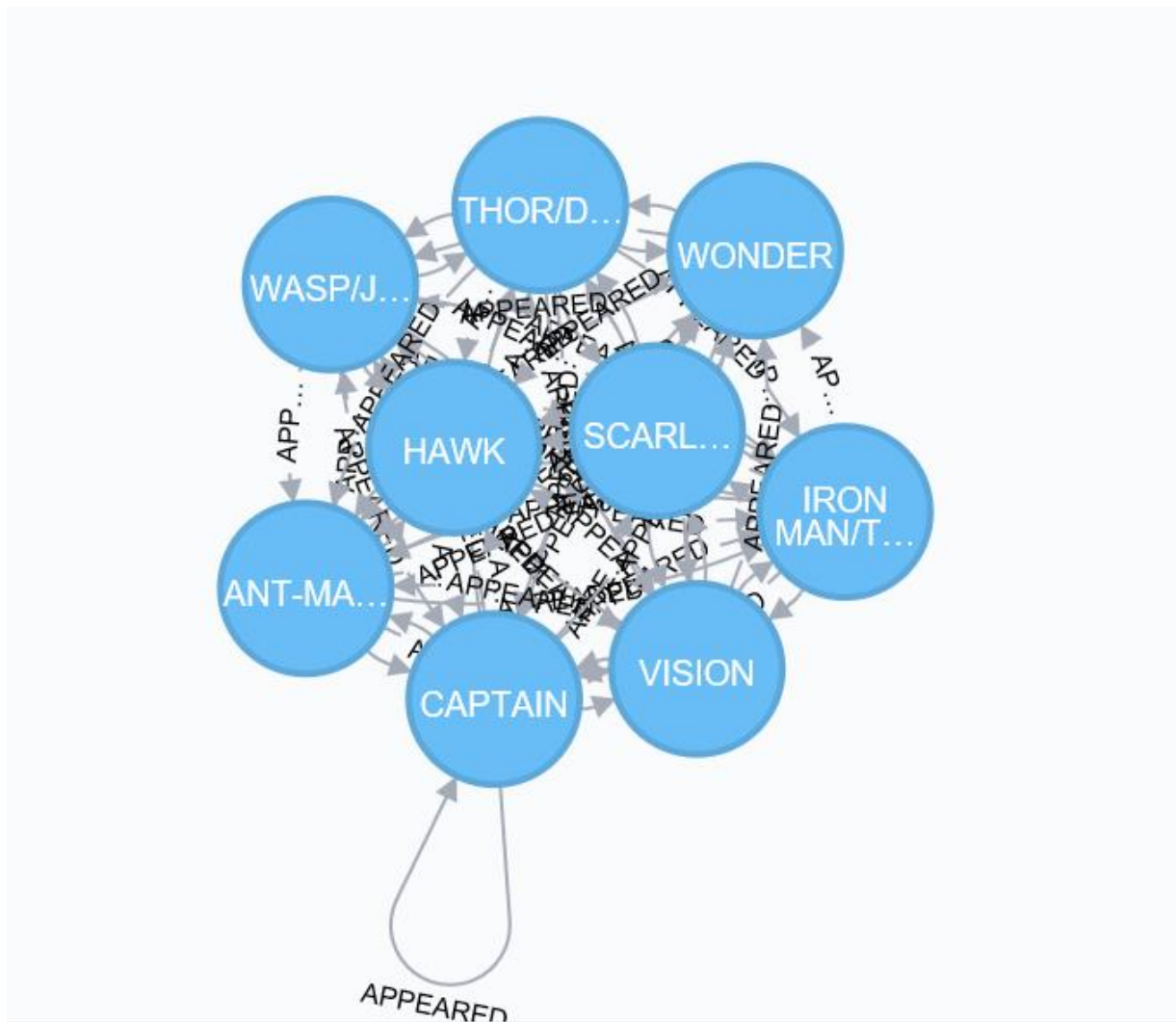
Query:

```
MATCH (tony:Hero {name:'IRON MAN/TONY STARK'}) -[e:APPEARED]-> (other) <-
[f:APPEARED]- (donald:Hero {name:'THOR/DR. DONALD BLAK'})
RETURN tony, donald, other
ORDER BY e.w DESC, f.w DESC
LIMIT 7
```

Members:

"tony"	"donald"	"other"
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "CAPTAIN AMERICA", "degree": 1426}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "SCARLET WITCH/WANDA", "degree": 1004}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "VISION", "degree": 919}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "WASP/JANET VAN DYNE", "degree": 778}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "ANT-MAN/DR. HENRY J.", "degree": 775}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "WONDER MAN/SIMON WIL", "degree": 729}
{"name": "IRON MAN/TONY STARK", "degree": 1132}	{"name": "THOR/DR. DONALD BLAK", "degree": 947}	{"name": "HAWK", "degree": 880}

Graph: It's a connected graph.



6) 10 members

Query:

```
MATCH (tony:Hero {name:'IRON MAN/TONY STARK'}) -[e:APPEARED]-> (other) <-  
[f:APPEARED]- (donald:Hero {name:'THOR/DR. DONALD BLAK'})  
RETURN tony, donald, other  
ORDER BY e.w DESC, f.w DESC  
  
LIMIT 8
```

Members:

"tony"	"donald"	"other"
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "CAPTAIN AMERICA", "degree": 1426 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "SCARLET WITCH/WANDA", "degree": 1004 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "VISION", "degree": 919 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "WASP/JANET VAN DYNE", "degree": 778 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "ANT-MAN/DR. HENRY J.", "degree": 775 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "WONDER MAN/SIMON WIL", "degree": 729 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "HAWK", "degree": 880 }
{ "name": "IRON MAN/TONY STARK", "degree": 1132 }	{ "name": "THOR/DR. DONALD BLAK", "degree": 947 }	{ "name": "IRON MAN IV/JAMES R.", "degree": 338 }

Graph: it's a connected graph.

