

# Applied Databases

## Neo4j II Exercise Sheet

### Setup

- On the VM Neo4j is located here:

C:\Users\appDB\Documents\neo4j-community-5.3.0-windows\neo4j-community-5.3.0

- neo4j.conf* is located here:

C:\Users\appDB\Documents\neo4j-community-5.3.0-windows\neo4j-community-5.3.0\conf\neo4j.conf

- On the VM the Username and Password are:

Username = neo4j

Password = neo4jneo4j

### Part 1

- Get *Lab7Part1Commds.txt* from and run the following command:

```
type Path_to_Lab7Part1Commands.txt | cypher-shell.bat -u neo4j -p neo4jneo4j --format plain
```

from the bin folder of your Neo4j installation.

E.g. Assuming:

- Lab7Part1Commds.txt* was downloaded to C:\Users\GHarrison\Downloads
- Neo4j installation is at C:\Users\GHarrison\Documents\neo4j-community-4.3.3-windows\neo4j-community-4.3.3\
- Neo4j username is neo4j
- Neo4j password is neo4j

The following should be run, and if no errors are reported the database will be set up.

NOTE: This will delete everything from your current database (as specified in neo4j.conf).

```
C:\Users\appDB\Downloads>type Lab7Part1Commds.txt | ..\Documents\neo4j-community-5.3.0-windows\neo4j-community-5.3.0\bin\cypher-shell.bat -u neo4j -p neo4jneo4j --format plain
C:\Users\appDB\Downloads>
```

- There will be 5 **COUNTY**, 11 **TOWN**, and 15 **PERSON** nodes in the database.

- Create the following relationships (some of which have a property called **countyTown**) between the nodes specified below:

TOWN	RELATIONSHIP	COUNTY
Galway	PART_OF {countyTown:true}	Galway
Tuam	PART_OF	Galway
Clifden	PART_OF	Galway
Carrick-on-Shannon	PART_OF {countyTown:true}	Leitrim
Manorhamilton	PART_OF	Leitrim
Castlebar	PART_OF {countyTown:true}	Mayo
Ballina	PART_OF	Mayo
Roscommon	PART_OF {countyTown:true}	Roscommon
Castlerea	PART_OF	Rocommon
Sligo	PART_OF {countyTown:true}	Sligo
Collooney	PART_OF	Sligo

- Create the following relationships (some of which have a property called **since**) between the nodes specified below:

PERSON	RELATIONSHIP	TOWN
Tom	LIVES_IN	Galway
Sean	LIVES_IN since:2010	Galway
Bob	LIVES_IN	Galway
Mary	LIVES_IN since:2018	Clifden
Alice	LIVES_IN since:2010	Clifden
Pat	LIVES_IN since:1959	Carrick-on-Shannon
Alan	LIVES_IN	Carrick-on-Shannon
Bill	LIVES_IN	Manorhamilton
Yvonne	LIVES_IN	Castlebar
Walter	LIVES_IN	Ballina
Colin	LIVES_IN	Roscommon
Brendan	LIVES_IN since:2013	Castlerea
Susan	LIVES_IN	Castlerea
Lucy	LIVES_IN	Sligo
Michael	LIVES_IN	Sligo

- Show the PERSONs who live in Galway TOWN.
- Show the age of the oldest PERSONs who lives in Carrick-on-Shannon.
- Show the average age of males who live in Roscommon COUNTY.
- Show the number of males who live in Galway COUNTY.
- Show the name and population of the COUNTY where Lucy lives.
- Show the COUNTY name , TOWN name and PERSON name where the person has lived in the town since the year 2010.
- Show the COUNTY name and the TOWN name of all towns with a population of less than 5000.
- For people living in towns since 2011 or later, show the person's name (as *Name*), how long they've been living in the town (as *Since*), and the name of the town (as *Town*), in chronological order.
- Show the total population of the towns in county Galway (as *County\_Galway\_Pop*),
- Show the county name (as *County*), the towns in the county (as *Towns*) and the number of towns in the county (as *Num\_Towns*).

E.g.

"County"	"Towns"	"Num_Towns"
"Galway"	["Clifden", "Tuam", "Galway"]	3

## Part 2

- Get *Lab7Part2Commds.txt* from and run the following command:

```
type Path_to_Lab7Part2Commands.txt | cypher-shell.bat -u neo4j -p neo4j --format plain
```

from the bin folder of your Neo4j installation.

E.g. Assuming:

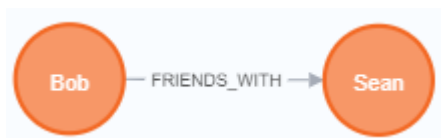
- *Lab7Part2Commds.txt* was downloaded to C:\Users\GHarrison\Downloads
- Neo4j installation is at C:\Users\GHarrison\Documents\neo4j-community-4.3.3-windows\neo4j-community-4.3.3\
- Neo4j username is neo4j
- Neo4j password is neo4j

The following should be run, and if no errors are reported the database will be set up.

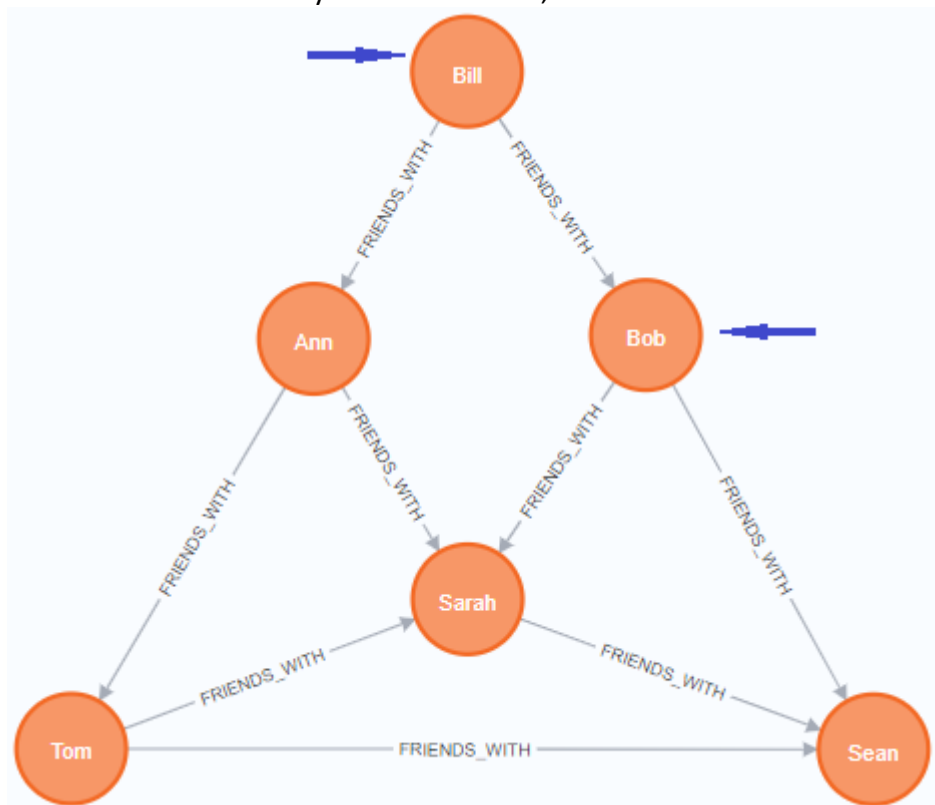
NOTE: This will delete everything from your current database (as specified in neo4j.conf).

```
Command Prompt
C:\Users\GHarrison\Documents>cd neo4j-community-4.3.3-windows\neo4j-community-4.3.3\bin
C:\Users\GHarrison\Documents\neo4j-community-4.3.3-windows\neo4j-community-4.3.3\bin>type C:\Users\GHarrison\Downloads\Lab7Part2Commds.txt | cypher-shell.bat -u neo4j -p neo4j --format plain
C:\Users\GHarrison\Documents\neo4j-community-4.3.3-windows\neo4j-community-4.3.3\bin>
```

**NOTE:** In this database, the FRIENDS\_WITH relationship can be read in either direction. In this example, “Bob” is FRIENDS\_WITH “Sean”, however it can be taken that “Sean” is also FRIENDS\_WITH “Bob”.



- Show the names of Bill's hobbies.
- Show the names of hobbies people who live in Galway like (as *Galway\_Hobbies*) in alphabetical order.
- Show all friends-of-friends of Tom.  
 A friend-of-a-friend (FOAF) is someone whom your friend is friends with, but not you.  
 In the example below, Bill and Bob are FOAFs of Tom.  
 Ann is a friend of Tom, and her friend is Sarah. So, Sarah would be a FOAF of Tom, but as Tom is already friends with her, she's not FOAF of Tom. Similarly, for Ann and Sean.



- Show the unique hobbies that people who live in Westmeath like (as *Westmeath\_Hobbies*).
- Show the number of people who like relaxation hobbies (as *Relaxation*).
- Show a heading called *Likes\_Basketball* that returns true if Sarah LIKES basketball, or false if Sarah doesn't like basketball.