Applied Databases

Topic 6 Exercise Sheet

Setup

- On the VM Neo4j is located here:

`C:\Users\appDB2022\Documents\neo4j-community-4.4.3-windows\neo4j-community-4.4.3`

- *neo4j.conf* is located here:

`C:\Users\appDB2022\Documents\neo4j-community-4.4.3-windows\neo4j-community-4.4.3\conf\neo4j.conf`

Part 1

- Use a new database called *l6p1* (by updating *neo4j.conf*).
- Run Neo4j as follows:
  - Open a Windows Command prompt/PowerShell and change to the `bin` folder of the Neo4j installation.
  - Run `neo4j console`

- Then open a browser to http://localhost:7474 and select the database just created (*l6p1*).

- Create the following nodes with a label `:Student` with the following properties:
  - **name:** "Tom"
  - **sid:** "G001"
  - **age:** 23
  - **sex:** "M"
  - **address:** "Galway"
  - **hair:** "brown"
  - **email:** "tom@gmail.com"

  - **name:** "Sean"
  - **sid:** "G002"
  - **age:** 19
  - **sex:** "M"
  - **address:** "Galway"
  - **email:** sean@gmail.com

  - **name:** "Bob"
  - **sid:** "G003"
  - **age:** 22
  - **sex:** "M"
  - **address:** "Mayo"
  - **email:** "bob123@hotmail.com"
  - **twitter:** "@bob123"

  - **name:** "Mary"
  - **sid:** "G004"
  - **age:** 20
  - **sex:** "F"
  - **address:** "Mayo"
  - **hair:** "blonde"
  - **email:** "mary19@gmail.com"
  - **twitter:** "@mary19"
  - **snapchat:** "mary19"

  - **name:** "Alice"
  - **sid:** "G005"
  - **age:** 28
  - **sex:** "F"
  - **address:** "Roscommon"
  - **email:** "alice@hotmail.com"
  - **snapchat:** "alice123"

- o **name:** "Pat"
- o **sid:** "G006"
- o **age:** 24
- o **sex:** "M"
- o **address:** "Roscommon"
- o **email:** "pat@hotmail.com"
- o **twitter:** "patABC"

- Create the following nodes with a label **:Lecturer** with the following properties:
  - o **name:** "Alan"
  - o **sid:** "L001"
  - o **age:** 57
  - o **sex:** "M"
  - o **address:** "Galway"
  - o **email:** "alan@gmit.ie",
  - o **twitter:** "@alan"

  - o **name:** "Mary"
  - o **sid:** "L002"
  - o **age:** 47
  - o **sex:** "F"
  - o **address:** "Mayo"
  - o **email:** "mary@gmit.ie
  - o **hair:** "brown"

- Find the average age of Students, rounded to the nearest whole number.

- Show the name of each student and his/her age.

- Find the age of the youngest Student.

- Show the names of students who have a *twitter* attribute.

- Show the number of students who have a *twitter* attribute.

- Show the average of age of people in their 20s, 30s and 40s rounded to one decimal place.

- Show all the properties for the Student *Tom.*

- Increase everyone's age by 1.

- Return the name and age of all males living in Galway.

- Create the following nodes with both :Student and :Lecturer labels
    - `name`: "Yvonne"
    - `age`: 37
    - `sex`: "F"
    - `address`: "Galway"
    - `email`: yvonne@gmit.ie
    - `twitter`: "@yv12"

    - `name`: "Walter"
    - `age`: 44
    - `address`: "Galway"
    - `email`: walter@gmit.ie
    - `hair`: "black"

- Show the name, age and hair colour of everyone who is both a Student and a Lecturer.

- Update the *twitter* attribute of all lectures to have GMIT after their existing twitter name. E.g. "@alan" should become "@alanGMIT".

- Find the average age of Males and find the youngest Male(s).
  Then return the name (as Name) and age (as *Age*) of the youngest Male(s) as well as the average age of Males (as *AverageAge*) and the difference in age between the youngest Male(s) and the average age (as *Difference*).

  E.g., If the average age of Males was 30, and the youngest Male was called "Tony" aged 20, the following should be returned:

Name	Age	AverageAge	Difference
Tony	20	30	10

Part 2

- Use a new database, *l6p2*, (by updating neo4j.conf).
- In the Neo4j Browser, select the new database and type the following command:

```
tdb$ :play movies
```

- This will return the following:

- Go to page 2 and follow steps 1 to 4.

- A series of 171 nodes (representing Movies and People) and 253 relationships (such as ACTED_IN, DIRECTED etc.) between the nodes should now be created.

- Type MATCH(n) RETURN n to see all nodes and relationships:

- Show each movie node for movies that were released between 2000 and 2010

- Set an attribute called olderThan70 to true for all Persons born in the 1930s.

- Show the movie title and the year it was released for the first 10 movies in alphabetical order.

- Show the unique years in which movies were released in chronological order.

- Show the title and tagline for movies released in 1999.

- Show the names of the people (as *People)* and the year they were born (as *YOB*) for everyone older than "Robin Williams".

- Show the number of movies released in 2006 (as *Releases_in_2006)*.

- Show the name (as *Name*) and born (as *YOB*) the youngest Person(s).