

Programming Applications with Databases

Exercise Set 7

1. Register and create a free instance in Neo4j Aura: <https://console-preview.neo4j.io/>. Create an example Movie database based on the short script at <https://neo4j.com/docs/cypher-manual/current/clauses/match/>.

[1p]

2. In the example database

- add 2 new actors and 2 new movies,
- add 2 new properties to 1 movie,
- add 2 new *acted_in* relations to the existing nodes,
- update 1 movie property,
- remove 1 *acted_in* relation.

[1p]

3. Prepare the following queries

- return the movies where person A acted in,
- return the movies where person A was both the actor and the director,
- return actors who didn't play in any movie,
- return actors who played in more than 2 movies,
- return movies with the larger number of actors.

If needed, additional nodes or relations can be added. For more details about functions in Cypher, see <https://neo4j.com/docs/cypher-manual/current/functions/>.

[1p]

4. Using the code from <https://neo4j.com/docs/dotnet-manual/current/get-started/> (Example 3), implement a solution that fetches all persons from a database created in Exercise 1 and prints all details as a table in the console.

Remark: In case some other technology is more preferred, please refer to <https://neo4j.com/docs/create-applications/>.

[2p]

5. Implement a solution as specified in the previous exercise, but with the following changes:

- all the fetched data is mapped to the appropriate object model covering both nodes and relationships, e.g., a node *Person* is mapped to the respective object of the *Person* class with all required properties,
- extend the code to support all CRUD operations.

For an initial inspiration, please refer to <https://github.com/DotNet4Neo4j/Neo4jClient> (also available as a NuGet package).

Remark: In case some other technology is more preferred, please refer to <https://neo4j.com/docs/create-applications/>.

[2p]

6. Following the approach presented during lectures, install Apache Cassandra. Using the attached lecture example, create a keyspace, a table with a few records, and fetch all using a simple query.

[1p]

7. Get familiar with the masking concept in Apache Cassandra and present a small example.

[1p]

8. Get familiar with the materialized views concept in Apache Cassandra and present a small example.

[1p]