GIK2NV – Data storage and management technologies

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Neo4j LABORATORY

Case Scenario

In this laboratory you will initially study the basics of the Graph database **Neo4j** and the query language **CYPHER** to then create your own project which you develop in the tool **Neo4j "SANDBOX"**.

- "Neo4j is a graph database management system developed by Neo4j, Inc. Described by Neo as an ACID compliant transaction database with built-in graph storage and processing, Neo4j is the most popular graph database according to DB-Engines, and the 22nd most popular database of all categories"

- " The Cypher query language **depicts patterns of nodes and relationships** and filters those patterns based on labels and properties. Cypher's syntax is based on ASCII art, which is text-based visual art for computers."

- "The Neo4j Sandbox is a way for you to get up and running with a project in no time at all – no downloading or installing required. Sandbox is especially suited for users who are new to Neo4j and want to play around with a simple example. The Sandbox environment is collaborative and interactive, allowing users to invite team members and can stay live for up to 10 days. If you are especially new to Neo4j, Sandbox allows you to jump into the code and interact with different guides."

1. Go to: https://neo4j.com and find out more about Neo4j under folders "Learn" and "Developers"

2. Find out and study the basics about CYPHER QUERY LANGUAGE at: https://neo4j.com/docs/

3. Get started with the Neo4j Sandbox: https://neo4j.com/sandbox/

4. Look at some example databases like the "Movie DB" and try to build an understanding for how to create and develop your own project

5. Build your own project in Neo4j Sandbox. **Remember: It should be a project that is based on the knowledge you have gained about Graph Databases and the type of project that these are suitable for!**

    A. Initially describe in WRITTEN TEXT what type of project is to be developed, and why it is suitable for design in a Graph-Database.
    B. Describe in WRITTEN TEXT which NODE and RELATIONSHIPS the model will contain and justification for these choices as well as which labels and properties they must have / contain.
    C. Define in WRITTEN TEXT which QUESTIONS your Graph-Database should be able to answer when it is implemented and justify why these particular questions are important to your model.
    D. Draw a picture of the computer model using a drawing tool. All NODE's / RELATIONSHIPS must be stated, and all labels / properties must be included.
    E. Implement your project model in Neo4j Sandbox:
        1. Verify that the model contains all intended NODE's and RELATIONSHIPS.

2. Verify that all questions asked to the database give expected answers /results.
3. Report all CODE that is associated with your implementation.
4. Take SCREENSHOTS on all resulting steps during implementation and testing of the database.

6. Summarize the entire project work in a written report:
   A. Front page with course name, course code, date and which students are included in the project (name and DU identity).
   B. Describe the design, implementation and test, ie all documentation produced under point (5) above. NOTE! All reported CODE must work to 100%.
7. Record a movie with sound where you explain the basic idea of your project, the overall design, all the code and show that the code works when implementing it in the Neo4j Sandbox. Make sure your movie-recording really works before submitting.
   - If you like, you can upload the movie to YouTube and enter the link to the movie in the lab report. Make sure the link really works before submitting the lab.
   - All students who participate in the group's presentation **must be involved and active during the film presentation**!

LABORATORY ENVIRONMENT

Neo4j Sandbox

DELIVERABLES

NOTE! This lab is a group work lab. All members of the group should contribute equally.

- The laboratory is presented in writing and orally / practically.
- Put this lab with your code/movie in the course room in Learn.