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Knowledge Graphs

Exercise 7: Property Graphs

7.1. RDF*/SPARQL*

Model the following information in RDF*:

- Markus thinks that Jutta lives in Mannheim (only quoted)
- Jutta and Markus worked for ABB between 2009 and 2015 (only quoted)
- Jutta worked for Fucks Petrolub between 2015 and 2020 (only quoted)
- Franz knows that ABB is located in Mannheim (asserted)

Create queries for:

a) When did Jutta work for ABB?
b) Who worked for Fucks Petrolub between 2009 and 2015?
c) Who worked for ABB (also print the start and end times)?
d) List all triples where Mannheim is used as object.

Upload the file containing this information to Fuseki (SPARQL server from Jena)[1] and run the queries.

7.2. Cypher

Download and install Neo4j[2], or use the Neo4j Sandbox[3] to load the example dataset called movie (you can do so by executing ":play movies" or selecting it in the sandbox environment).

Create Cypher queries for each case below:

a) Find all persons who acted and directed a movie
b) Find all actors who have co-starred in two movies
c) How is Corey Feldman connected to Kelly Preston (only via at most 5 ACTED_IN relations)

7.3. Cypher II

Create a new neo4j database and model the same information as in exercise 7.1. Find answers to queries.

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[1] You can download Fuseki at https://jena.apache.org/download/ (using the binary distribution of the Fuseki server)
[2] https://neo4j.com/download/
[3] https://neo4j.com/sandbox-v2/ - requires a free account