Assignment 3

Exercise 1 – NoSQL MongoDB

Download and install MongoDB: https://www.mongodb.com/download-center/community.
Import the video data-set "videoDB.zip" from the moodle course.

Use the command line import tool "mongorestore":
`mongorestore -d "video" "pathToUnzippedVideoDB.zip"`.
You find mongorestore in the bin folder of your mongoDB installation.

Solve the following tasks using Mongo queries in MongoDB´s JSON query notation*:

a) Write a query returning all movies directed by "George Lucas".

b) Like a) but only return the title and no other info.

c) Write a query returning all movies directed by "Jon Brewer" or where the director is unknown (null).

d) Write a query returning all movies directed by "Curt McDowell" in 1980.

e) Write a query returning all movies with more than one director.

f) Write a query returning all movies where Will Smith and Martin Lawrence played together.

g) Write a query returning all movies where Will Smith or Martin Lawrence played in, but not both.

h) Write a query returning all movies where Will Smith and Martin Lawrence played together that won at least 3 awards.

*You might find useful documentation here:
https://docs.mongodb.com/manual/tutorial/query-documents/

Exercise 2 – Aggregation Pipeline & Joins & Updates

a) Write a query returning the name and number of movies of each director.
Warning: The director may contain a list of persons. You do not need to take care of different names for the same person.

b) Rename the director Roland Emmerich to R. Emmerich. Be sure to update all his movies.

c) Return all movie titles (video_movies.title) of all movies that were filmed in France (video_movieDetails.country). The lookup function might be useful:
https://docs.mongodb.com/manual/reference/operator/aggregation/lookup/

Exercise 3 – Transaction Model

Read the paper (A copy is in the moodle course):

William Schultz, Tess Avitabile, and Alyson Cabral. 2019. Tunable consistency in MongoDB. Proc. VLDB Endow. 12, 12 (August 2019), 2071–2081.

Prepare a short summary focusing on the following questions:

- What kind of transactional guarantees does MongoDB support and how?
- How do the different options influence performance in distributed and non-distributed settings?