



AARHUS UNIVERSITET

Microservices and DevOps

DevOps and Container Technology

Redis Exercises

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Exercise 1

- The SkyCave have rooms in 3D space.
 - Let us simplify – a room just have a String description
 - “You are in a ...”
- Design a Redis datastructure to handle all rooms
 - addRoom & getRoom
- Testdrive a couple of rooms in the Redis shell
 - Consider how addRoom, updateRoom, works
- How to compute the total no. of rooms in cave?

Exercise 2

- A course management system
 - Each course under key 'cxx' with this structure using hash

```
127.0.0.1:6379> hmset c01 name swea year 2021 teacher hbc
OK
127.0.0.1:6379> hmset c02 name msdo year 2021 teacher hbc
OK
127.0.0.1:6379> hmset c03 name intprog year 2021 teacher kj
OK
127.0.0.1:6379> hmset c04 name saip year 2020 teacher hbc
OK
```

- How to *efficiently* do
 - Get all courses?
 - List names of all courses that 'hbc' has taught
 - Same as above but only in 2021

Remember: NoSQL does client-side Joins!

Exercise 'redis-datatype-model'

In this exercise, the learning focus is on using the Redis shell, and explore the key-value paradigm of a NoSQL db.

In mandatory exercise 'integration-redis-storage', you will develop a Redis 'CaveStorage' connector/driver, and in order to do that, you of course have to reflect upon which Redis datatypes (and potentially 'secondary indices') that suits the domain - just as Entity-Relation models are developed for 'good old SQL'.

Requirements:

- Briefly study the datatypes provided by Redis: Keys, Sets, Sorted Sets, Hashes, ...
- Study the 'CaveStorage' interface, and propose datastructures model handling its data. Note that CaveStorage actually covers diverse 'domains' like "players", "rooms", and "wall postings" which are rather disjoint and can be considered in isolation.
- Consider some of the 'not straight forward key-value' queries/commands like
 1. `computeListOfPlayersAt()`
 2. `addMessage()` + `updateMessage()`

What kind of datatypes are involved? Do you need secondary indices? How are primary and secondary datastructures linked (the 'foreign key' so to speak)?