Counting Activity 2

This folder contains multiple files, which is going to be filled by you with the solutions to each assignment. This file describes the tasks you must perform, while the other files are referred to via the tasks described below. The following sections describe the tasks you need to perform.

Task 1: Advanced Relational Databases

This task consists of 6 subtasks/questions. These can be found inside "Task1.sql" from the Zip file. They are written as comments at the top of the file. Those that are questions requires you to substitute <<ANSWER HERE>> with your own answer inside of the SQL file. Others require you to extend the SQL script at the bottom of the file. Save all answers and code changes inside the file as you need to upload this file to blackboard later.

Task 2: NoSQL Databases

Subtask 1: HorseShoes

For this question, put your answer inside "Task2 - Subtask 1.txt" from the zip file.

Horse transportation is booming across the world and the company 'HorseShoes' sells a lot of premium horseshoes for both customers in Denmark and customers in USA.

For that reason, they want a database which satisfies the following constraints:

- Fault tolerance
  - In case of natural disasters, data should not be lost.
- Fast database speeds for both customers in USA and Denmark
  - They want to increase performance by gradually adding more servers.
- Because of GDPR the data from Denmark cannot be replicated in USA

1. How would you split the data?
   a. What is the method of splitting data called?
2. Where would this database place in the CAP theorem?
   a. Explain your answer.
3. Is the database horizontally or vertically scaled?

Subtask 2: JSON

Open the file called "Task2 - Subtask 2.json" from the zip file. Create a json object that contains the following content:

1. The first object of the file is a store object. It has a name and is called "Tundra Motors". It also has a Founded date of 1995, and has an ID property with the Int value of 5.
2. The store object has a property called inventory. This inventory contains two cars, where each car has a Manufacturer name, Model Number, Weight, and "Sold" (Make up the values). The Sold attribute can be of value true or false.
3. Additionally, the store object also has a property called "Employees", that contains the names of the employees. The employees are called Jake, Bob, and Jane.

Subtask 3: Using MongoDB from Java

Create a new java console project in the folder “Task2 - Subtask 3” that was contained in the zip file. In this project, re-create the JSON object from subtask 2, and save it into a MongoDB collection. Afterwards, retrieve the json object and print all the properties of the object to the console. You can use any method you have learned during the course to do so.

Submission

To submit the assignment, make sure you have a folder containing the following files:

- Task1.sql
- Task2 - Subtask 1.txt
- Task2 - Subtask 2.json
- Task2 - Subtask 3 (Folder)

Check each file has your work contained within, and then Zip the file. Now rename the file to your SDU username, such as abcd12.zip. After these steps are complete, go to the assignment location in the Data Management section of ItsLearning, and upload the zip file. For your own security, please also try and download the file again afterwards, and unzip it to verify the version stored on the server works as intended.