Fundamentals of Data Management

Credit Tasks 11.2: MongoDB

Overview

You'll learn how to add, update and query documents in the MongoDB document database.

Purpose

Gain some experience of working with non-relational databases.

Task

Download the Ubuntu virtual machine from Canvas and open it in the VMWare Player. Open a Terminal window and make a connection to MongoDB. Complete the tasks.

Time

This task should be completed in your lab class and submitted for feedback in lab 11 or at the beginning of lab 12.

Resources

- Online module (from Canvas)
- MongoDB and mongo shell on Ubuntu VM.
- MongoDB CRUD Operations manual at http://docs.mongodb.org/manual/tutorial/query-documents/

Feedback

Discuss your solutions with the tutorial instructor.

Next

That's it, you're done with the tutorials ☺. Work on D/HD level tasks if you like.

Credit Tasks 11.2 — Submission Details and Assessment Criteria

Document your solutions to the tasks using a word processor. Upload the report to Doubtfire, then discuss your results with the tutor.

Getting Started

Open the VMWare Player and start the virtual machine. The password for fdm is admin. Click on the application icon (the uppermost icon on the left in Ubuntu). Find the Terminal among the applications (Type 'Terminal' into the search field).

Type

mongo test

and <Enter> .

You have a connection to the 'test' database on MongoDB. The way you can tell is that the command prompt is now

>

Instead of

fdm@fdm-virtual-machine:~$

If you want to close the connection and return to Ubuntu, type

exit

and <Enter>

> **Note**: In MongoDB, the 'up' and 'down' arrows work just like on the command line – they bring up previously used commands. No need to type the command every time when you are working in the right syntax it.

A storage unit in MongoDB is called a collection. While you have a connection, see what collections are in the 'test' database:

show collections

You should see a 'restaurants' collection and a system collection. Query the content of the 'restaurants' collection:

db.restaurants.find()

This is the equivalent of SELECT * FROM restaurants; in SQL. You'll find that by default, MongoDB brings only the twenty first entries. If you want to list more, you have to type 'it' and <ENTER>. But how many restaurants are in the collection? Is it worth scrolling through all of them?

db.runCommand({count: 'restaurants'})

shows the number of restaurants in the collection.

Example document:


```
{
    "_id": ObjectId("55b2b4562fc7302843ef3927"),
    "address": {
        "building": "522",
        "coord": [
            -73.95171,
            40.767461
        ],
        "street": "East   74 Street",
        "zipcode": "10021"
    },
    "borough": "Manhattan",
    "cuisine": "American ",
    "grades": [
        {
            "date": ISODate("2014-09-02T00:00:00Z"),
            "grade": "A",
            "score": 12
        },
        {
            "date": ISODate("2013-12-19T00:00:00Z"),
            "grade": "B",
            "score": 16
        },
        {
            "date": ISODate("2013-05-28T00:00:00Z"),
            "grade": "A",
            "score": 9
        },

    ],
    "name": "Glorious Food",
    "restaurant_id": "40361521"
}
```


The entries have names and addresses of restaurants as well as the style of cuisine and grades received by customers.

Hint: CRUD is a relational acronym for CREATE, READ, UPDATE, DELETE; it means DDL (data definition) and DML (data manipulation).

Hint: Use a text editor to work on your scripts before running them in the terminal.

Subtask 11.2.1

With the help of the MongoDB CRUD tutorial, find the command that queries restaurants with a restriction on the grades. There has to be at least one score above 50, otherwise the restaurant is not included in the result. Apply a projection: Print only the names and cuisine styles.

> **Hint**: You have to use dot notation to be able to access the score.

Once you have found the command to print the restaurants with scores over 50, type the command that counts these restaurants. How many are there?

Document the commands and upload.