Programming Assignment #3: CAS CS460

NoSQL Databases

Due: 12/18 11:59 pm on gradescope.

1. Introduction

In this assignment, you will use a NoSQL database system called MongoDB. You will load all data from JSON file.

More about MongoDB and JSON you can find here and here.

2. Setup the Database

1. Download and install MongoDB. Instructions for macOS users can be found here. Instructions for Ubuntu users can be found here.

2. Download the restaurants dataset at:

https://raw.githubusercontent.com/mongodb/docs-assets/primer-dataset/primer-dataset.json

3. Use mongoimport to import the restaurants dataset into MongoDB.

(use something like this):

```
> mongoimport --db test --collection restaurants --drop --file primer-dataset.json
```

You may need to specify the full directory of the file.

Now you are ready to start the project. Notice that the dataset contains information about restaurants in New York City.

3. Queries in MongoDB

After importing the data, write queries in MongoDB to answer the following questions (try to use aggregation pipelines when possible): To access the MongoDB environment, just open your terminal and type "mongo".

(1) Find the restaurant name and ID of "Caffe Dante".

(2) Find all restaurants whose name has "Ice Cream" in it, return only the restaurant's ids and names.

(3) Find the names of all restaurants that have a score above 5 and are in the Brooklyn borough.

(4) Return the top 10 boroughs based on the number of American restaurants they have.

(5) Find the worst American restaurant in Manhattan in terms of total score.

Hint: You can use "$unwind".

(6) Consider a rectangle area on the location field, in which the vertices are [-74 , 40.5] , [-74 , 40.7] , [-73.5 , 40.5] and [-73.5 , 40.7]. Find the number of restaurants in this area that have received a grade score (at least one) more than 50.

Hint: Use the $geoWithin and $box.

4. Submission instructions

Create a file that contains the queries in MongoDB and your comments (if any) but NOT the results of the queries.

We accept only Text or PDF files.

Submit on gradescope!