

MongoDB HW

(12% of total grade)

A. MongoDB with restaurants database

Make sure restaurant database is imported in your mongodb.

FYI, an example of a document in *restaurants* dataset is as follows.

```
{
  "address": {
    "building": "1007",
    "coord": [ -73.856077, 40.848447 ],
    "street": "Morris Park Ave",
    "zipcode": "10462"
  },
  "borough": "Bronx",
  "cuisine": "Bakery",
  "grades": [
    { "date": { "$date": 1393804800000 }, "grade": "A", "score": 2 },
    { "date": { "$date": 1378857600000 }, "grade": "A", "score": 6 },
    { "date": { "$date": 1358985600000 }, "grade": "A", "score": 10 },
  ],
  "name": "Morris Park Bake Shop",
  "restaurant_id": "30075445"
}
```

(You can Refer to: <https://www.mongodb.com/docs/manual/crud/>)

* [2pts/each] From the collection 'restaurants', do the following queries.

For each of the following query, show mongodb mql command, and its results.

For each query, **show the first 5 documents only**.

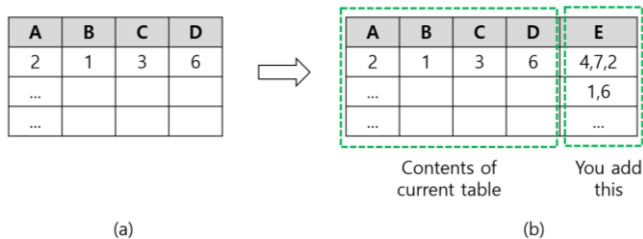
Run the commands using mongosh (not mongodb Compass). You can check the results of commands using mongodb Compass, though.

1. Show the first 5 restaurants which is in the borough Queens.
2. Show the restaurants which do not serve any cuisine of 'Chinese' and received a grade point 'B'. The results should be sorted based on cuisine in descending order.
3. Show the fields restaurant_id, name, cuisine and borough, but don't include _id for the first 5 restaurants.
4. Show the next 5 restaurants after skipping first 5 which are in the borough Bronx.
5. Show the restaurant_id, name, borough and cuisine for those restaurants which prepared dish except 'American' and 'Chinese'
6. Show the restaurants that achieved a 'score', more than 70 but less than 90.
7. Show the restaurant_id, name, and cuisine for those restaurants which belong to the borough Manhattan or Queens or Bronx.
8. Show the restaurants which locate in latitude value less than -93.
9. Show the restaurant_id, name and grades for those restaurants which returns 0 as a remainder after dividing the score by 7.

10. Write a MongoDB query to find the restaurants that have at least one grade with a score of less than 5 and that are located in the borough of Manhattan or Brooklyn
11. Write a MongoDB query to find the name ,address and grades of the restaurants that have at least one 'A' grade and no 'C' grades.
12. Write a MongoDB query to find the name, address, and grades of the restaurants that have at least one 'A' grade, no 'B' grades, and no 'C' grades.

B. Mongodb with your own table

1. create your database and collection
 - 1) create your own database and collection in mongodb (using mongodb Compass or mongosh). Use proper name for database and collection.
 - 2) choose ONE table from your term project mysql database (only one table with at least 5 attributes). If your table has less than 5 attributes, add more attributes.
 - 3) [2pts] show the contents of original table in your mysql table
 - 4) Now in the table, **assume** you add a new attribute and fill the attribute with an array of numbers. For example, in the figure below, you add a new attribute E and fill the attribute with an array of values of such as {4,7,2}, {1,6} ... (Don't actually insert attribute/data in your mysql table. Actual insertions will be done in step 5)-6).)



If your table has less than 12 records, add more records. Make sure the data values should be diverse so that you can run queries in Q. B-2.

- 5) Represent the contents in Figure (b) in JSON format file.
- 6) Using mongodb Compass, import the JSON file into your collection
 - Or you can manually insert documents using insertMany() (slide p. 43)
- 7) [8pts] show the contents of your collection (using find())

2. [2pts/each] Execute ONE mql command for each of the following clauses. Show a) the query in plain English, (explain what this query is about), b) the corresponding MQL command, and c) the results of the command

- I. use projection
- II. use comparison operator
- III. use \$and and \$or operator
- IV. use \$all operator
- V. use \$elemMatch operator
- VI. use update operator
- VII. use delete operator

3. (extra, 10pts) There will be extra points if you do the following.

- 1) Select another table from your mysql database, and do Question B-1.
- 2) Instead of queries in Question B-2, run the queries similar to the queries in page 57 of the slide.