

Course Objectives

To provide students the knowledge and skills to master the NoSQL database mongoDB.

Course Outcomes(COs)

1. To provide students the right skills and knowledge needed to develop Applications on mongoDB
2. To provide students the right skills and knowledge needed to run Applications on mongoDB

Structure of 'restaurants' collection :

```
{ "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": { "$date": 1358985600000 }, "grade": "A", "score": 10 }, { "date": { "$date": 1322006400000 }, "grade": "A", "score": 9 }, { "date": { "$date": 1299715200000 }, "grade": "B", "score": 14 }, "name": "Morris Park Bake Shop", "restaurant_id": "30075445" }
```

1. Write a MongoDB query
 - a. to display all the documents in the collection restaurants.
 - b. to display the fields restaurant_id, name, borough and cuisine for all the documents in the collection restaurant.
 - c. to display the fields restaurant_id, name, borough and cuisine, but exclude the field _id for all the documents in the collection restaurant
 - d. to display the fields restaurant_id, name, borough and zip code, but exclude the field _id for all the documents in the collection restaurant.
 - e. to display all the restaurant which is in the borough Bronx
 - f. to display the first 5 restaurant which is in the borough Bronx.
 - g. to display the next 5 restaurants after skipping first 5 which are in the borough Bronx.
 - h. to find the restaurants who achieved a score more than 90.
 - i. to find the restaurants that achieved a score, more than 80 but less than 100.
2. Write a MongoDB query
 - a. to find the restaurants which locate in latitude value less than -95.754168.
 - b. to find the restaurants that do not prepare any cuisine of 'American' and their grade score more than 70 and latitude less than -65.754168.
 - c. to find the restaurants which do not prepare any cuisine of 'American' and achieved a score more than 70 and not located in the longitude less than - 65.754168. Note : Do this query without using \$and operator. Go to the editor

- d. to find the restaurants which do not prepare any cuisine of 'American ' and achieved a grade point 'A' not belongs to the borough Brooklyn. The document must be displayed according to the cuisine in descending order.
3. Write a MongoDB query
 - a. to find the restaurant Id, name, borough and cuisine for those restaurants which contain 'Wil' as first three letters for its name. Go to the editor
 - b. to find the restaurant Id, name, borough and cuisine for those restaurants which contain 'ces' as last three letters for its name.
 - c. to find the restaurant Id, name, borough and cuisine for those restaurants which contain 'Reg' as three letters somewhere in its name.
4. Write a MongoDB query
 - a. to find the restaurants which belong to the borough Bronx and prepared either American or Chinese dish.
 - b. to find the restaurant Id, name, borough and cuisine for those restaurants which belong to the borough Staten Island or Queens or Bronx or Brooklyn.
 - c. to find the restaurant Id, name, borough and cuisine for those restaurants which are not belonging to the borough Staten Island or Queens or Bronx or Brooklyn.
 - d. to find the restaurant Id, name, borough and cuisine for those restaurants which achieved a score which is not more than 10.
 - e. to find the restaurant Id, name, borough and cuisine for those restaurants which prepared dish except 'American' and 'Chinees' or restaurant's name begins with letter 'Wil'.
 - f. to find the restaurant Id, name, and grades for those restaurants which achieved a grade of "A" and scored 11 on an ISODate "2014-08- 11T00:00:00Z" among many of survey dates
 - g. to find the restaurant Id, name and grades for those restaurants where the 2nd element of grades array contains a grade of "A" and score 9 on an ISODate "2014-08-11T00:00:00Z".
5. Write a MongoDB query to find the restaurant Id, name, address and geographical location for those restaurants where 2nd element of coord array contains a value which is more than 42 and upto 52
6. Write a MongoDB query
 - a. to arrange the name of the restaurants in descending along with all the columns.
 - b. to arranged the name of the cuisine in ascending order and for that same cuisine borough should be in descending order.
7. Write a MongoDB query to know whether all the addresses contains the street or not.
8. Write a MongoDB query which will select all documents in the restaurants collection where the coord field value is Double.
9. Write a MongoDB query which will select 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 restaurant name, borough, longitude and attitude and cuisine for those restaurants which contains 'mon' as three letters somewhere in its name.

SUGGESTED READINGS

1. Kyle Banker. (2012). MongoDB in Action. Manning Publications Co.
2. Rick Copeland. (2013). MongoDB Applied Design Patterns, 1st Edition, O'Reilly

Media Inc.

3. Gautam Rege, (2012). Ruby and MongoDB Web Development Beginner's Guide. Packt Publishing Ltd
4. Mike Wilson.. (2013). Building Node Applications with MongoDB and Backbone, O'Reilly Media Inc.
5. David Hows. (2009). The definitive guide to MongoDB, 2nd edition, Apress Publication, 8132230485
6. Shakuntala Gupta Edward. 2016. Practical Mongo DB , 2nd edition, Apress Publications, 2016, ISBN 1484206487

WEBSITES

1. <http://www.mongodb.org/about/production-deployments/>
2. <http://docs.mongodb.org/ecosystem/drivers/>
3. <http://www.mongodb.org/about/applications/>
4. <http://www.mongodb.org/>

