

D20033 – Shreyansh Bhalodiya NO-SQL Assignment

Q1. Create database praxis

Q2 Create collection restaurant

Q3. Insert below json in collection restaurant and then add at least 4 more in same collection

Command Prompt - mongo

```
---
> use praxis
switched to db praxis
> db.createcollection("restaurant")
uncaught exception: TypeError: db.createcollection is not a function :
@(shell):1:1
> db.createCollection("restaurant")
{ "ok" : 1 }
> db.restaurant.insert({
...   "name": "ITC",
...   "restaurant_id": "20075",
...   "address": {
...     "building": "10",
...     "coord": [ -74.85, 50.84 ],
...     "street": "ITC Ave",
...     "zipcode": "560076"
...   },
...   "borough": "croydon",
...   "cuisine": "Bakery",
...   "grades": [
...     { "date": { "$date": 1393804800000 }, "grade": "A", "score": 4 },
...     { "date": { "$date": 1378857600000 }, "grade": "B", "score": 5 },
...     { "date": { "$date": 1358985600000 }, "grade": "A", "score": 10 },
...     { "date": { "$date": 1322006400000 }, "grade": "C", "score": 9 },
...     { "date": { "$date": 1299715200000 }, "grade": "B", "score": 14 }
...   ]
... })
WriteResult({ "nInserted" : 1 })
> db.restaurant.insert({
...   "name": "Taj hotels",
...   "restaurant_id": "20076",
...   "address": {
...     "building": "11",
...     "coord": [ -23.877, 23.447 ],
...     "street": "Taj street",
...     "zipcode": "560077"
...   },
...   "borough": "Ealing",
```

Q4. Write a Mongo DB query to display all the documents in the collection restaurant

Command Prompt - mongo

— □ ×

```
    },
    "grade" : "A",
    "score" : 6
  }
]
}
> db.restaurant.find()
{ "_id" : ObjectId("602a7a3e641bd14ef2349412"), "name" : "ITC", "restaurant_id" : "20075", "address" : { "building" : "10", "coord" : [ -74.85, 50.84 ], "street" : "ITC Ave", "zipcode" : "560076" }, "borough" : "croydon", "cuisine" : "Bakery", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "B", "score" : 5 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 14 } ] }
{ "_id" : ObjectId("602a7c86641bd14ef2349413"), "name" : "Taj hotels", "restaurant_id" : "20076", "address" : { "building" : "11", "coord" : [ -23.877, 23.447 ], "street" : "Taj street", "zipcode" : "560077" }, "borough" : "Ealing", "cuisine" : "Hyderabadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "D", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 6 }, { "date" : { "$date" : 1358985600000 }, "grade" : "C", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 4 } ] }
{ "_id" : ObjectId("602a7e6a641bd14ef2349414"), "name" : "4 Seasons", "restaurant_id" : "20077", "address" : { "building" : "12", "coord" : [ -43.877, 53.447 ], "street" : "27th main", "zipcode" : "560078" }, "borough" : "Darling", "cuisine" : "Gujrati", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 7 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 8 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "B", "score" : 8 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 6 } ] }
{ "_id" : ObjectId("602a7ef1641bd14ef2349415"), "name" : "JP mariott", "restaurant_id" : "20078", "address" : { "building" : "13", "coord" : [ -63.877, 83.487 ], "street" : "29th main", "zipcode" : "560079" }, "borough" : "Gargling", "cuisine" : "Marvadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 10 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 8 } ] }
{ "_id" : ObjectId("602a7fb3641bd14ef2349416"), "name" : "Obreo", "restaurant_id" : "20079", "address" : { "building" : "14", "coord" : [ -83.877, 93.487 ], "street" : "30th main", "zipcode" : "560080" }, "borough" : "Lion", "cuisine" : "south indian", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 13 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 14 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 9 } ] }
{ "_id" : ObjectId("602a84bc641bd14ef2349417"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Tiger", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
>
```

Q5. Write a Mongo DB query to display the field's restaurant_id, name, borough and cuisine for all the documents in the collection restaurant.

Command Prompt - mongo

```
> db.restaurant.find({},{"restaurant_id" : 1,"name":1,"borough":1,"cuisine" :1})
{ "_id" : ObjectId("602a7a3e641bd14ef2349412"), "name" : "ITC", "restaurant_id" : "20075", "borough" : "croydon", "cuisine" : "Bakery" }
{ "_id" : ObjectId("602a7c86641bd14ef2349413"), "name" : "Taj hotels", "restaurant_id" : "20076", "borough" : "Ealing", "cuisine" : "Hyderabadi" }
{ "_id" : ObjectId("602a7e6a641bd14ef2349414"), "name" : "4 Seasons", "restaurant_id" : "20077", "borough" : "Darling", "cuisine" : "Gujrati" }
{ "_id" : ObjectId("602a7ef1641bd14ef2349415"), "name" : "JP mariott", "restaurant_id" : "20078", "borough" : "Gargling", "cuisine" : "Marvadi" }
{ "_id" : ObjectId("602a7fb3641bd14ef2349416"), "name" : "Obreoi", "restaurant_id" : "20079", "borough" : "Lion", "cuisine" : "south indian" }
{ "_id" : ObjectId("602a84bc641bd14ef2349417"), "name" : "7 Seas", "restaurant_id" : "20080", "borough" : "Tiger", "cuisine" : "malyali" }
>
```

Q6. Write a Mongo DB query to display the field's restaurant_id, name, borough and cuisine, but exclude the field “_id” for all the documents in the collection restaurant.

Command Prompt - mongo

```
> db.restaurant.find({},{"restaurant_id" : 1,"name":1,"borough":1,"cuisine" :1,"_id":0})
{ "name" : "ITC", "restaurant_id" : "20075", "borough" : "croydon", "cuisine" : "Bakery" }
{ "name" : "Taj hotels", "restaurant_id" : "20076", "borough" : "Ealing", "cuisine" : "Hyderabadi" }
{ "name" : "4 Seasons", "restaurant_id" : "20077", "borough" : "Darling", "cuisine" : "Gujrati" }
{ "name" : "JP mariott", "restaurant_id" : "20078", "borough" : "Gargling", "cuisine" : "Marvadi" }
{ "name" : "Obreoi", "restaurant_id" : "20079", "borough" : "Lion", "cuisine" : "south indian" }
{ "name" : "7 Seas", "restaurant_id" : "20080", "borough" : "Tiger", "cuisine" : "malyali" }
>
```

Q7. Write a Mongo DB query to display the fields restaurant_id, name, borough, zip code and grade, but exclude the field _id for all the documents in the collection restaurant.

```
> db.restaurant.find({},{"restaurant_id" : 1,"name":1,"borough":1,"address.zipcode" :1,"_id":0})
{ "name" : "ITC", "restaurant_id" : "20075", "address" : { "zipcode" : "560076" }, "borough" : "croydon" }
{ "name" : "Taj hotels", "restaurant_id" : "20076", "address" : { "zipcode" : "560077" }, "borough" : "Ealing" }
{ "name" : "4 Seasons", "restaurant_id" : "20077", "address" : { "zipcode" : "560078" }, "borough" : "Darling" }
{ "name" : "JP mariott", "restaurant_id" : "20078", "address" : { "zipcode" : "560079" }, "borough" : "Gargling" }
{ "name" : "Obreoi", "restaurant_id" : "20079", "address" : { "zipcode" : "560080" }, "borough" : "Lion" }
{ "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "zipcode" : "560081" }, "borough" : "Tiger" }
```

Q8. Write a Mongo DB query to display all the restaurant which is in the borough Croydon.

Command Prompt - mongo

```
> db.restaurant.find({"borough":"croydon"})
{ "_id" : ObjectId("602a7a3e641bd14ef2349412"), "name" : "ITC", "restaurant_id" : "20075", "address" : { "building" : "10", "coord" : [ -74.85, 50.84 ], "street" : "ITC Ave", "zipcode" : "560076" }, "borough" : "croydon", "cuisine" : "Bakery", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "B", "score" : 5 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 14 } ] }
> db.restaurant.find({"borough":"Lion"})
{ "_id" : ObjectId("602a7fb3641bd14ef2349416"), "name" : "Obreoi", "restaurant_id" : "20079", "address" : { "building" : "14", "coord" : [ -83.877, 93.487 ], "street" : "30th main", "zipcode" : "560080" }, "borough" : "Lion", "cuisine" : "south indian", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 13 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 14 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 9 } ] }
>
```

Q9. Write a Mongo DB query to display the first 5 restaurant which is in the borough Ealing.

```
db.restaurants.find ({"borough": "Ealing"}).skip(5).limit(5)
```

Q10. Write a Mongo DB query to display the next 1 restaurants after skipping first 2 which are in the borough Eagling.

```
db.restaurants.find ({"borough": "Tiger"}).skip (5).limit (5)
```


Q11. Write a Mongo DB query to find the restaurants who achieved a score more than 9.

Command Prompt - mongo

```
>
> db.restaurant.find({grades: { $elemMatch:{ "score":{$gt : 9}}}})
{ "_id" : ObjectId("602a7a3e641bd14ef2349412"), "name" : "ITC", "restaurant_id" : "20075", "address" : { "building" : "10", "coord" : [ -74.85, 50.84 ], "street" : "ITC Ave", "zipcode" : "560076" }, "borough" : "croydon", "cuisine" : "Bakery", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "B", "score" : 5 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 14 } ] }
{ "_id" : ObjectId("602a7c86641bd14ef2349413"), "name" : "Taj hotels", "restaurant_id" : "20076", "address" : { "building" : "11", "coord" : [ -23.877, 23.447 ], "street" : "Taj street", "zipcode" : "560077" }, "borough" : "Ealing", "cuisine" : "Hyderabadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "D", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 6 }, { "date" : { "$date" : 1358985600000 }, "grade" : "C", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 4 } ] }
{ "_id" : ObjectId("602a7e6a641bd14ef2349414"), "name" : "4 Seasons", "restaurant_id" : "20077", "address" : { "building" : "12", "coord" : [ -43.877, 53.447 ], "street" : "27th main", "zipcode" : "560078" }, "borough" : "Darling", "cuisine" : "Gujrati", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 7 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 8 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "B", "score" : 8 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 6 } ] }
{ "_id" : ObjectId("602a7ef1641bd14ef2349415"), "name" : "JP mariott", "restaurant_id" : "20078", "address" : { "building" : "13", "coord" : [ -63.877, 83.487 ], "street" : "29th main", "zipcode" : "560079" }, "borough" : "Gargling", "cuisine" : "Marvadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 10 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 8 } ] }
{ "_id" : ObjectId("602a7fb3641bd14ef2349416"), "name" : "Obreoi", "restaurant_id" : "20079", "address" : { "building" : "14", "coord" : [ -83.877, 93.487 ], "street" : "30th main", "zipcode" : "560080" }, "borough" : "Lion", "cuisine" : "south indian", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 13 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 14 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 9 } ] }
{ "_id" : ObjectId("602a84bc641bd14ef2349417"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Tiger", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9c4641bd14ef2349419"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9d6641bd14ef234941a"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9e2641bd14ef234941b"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9fe641bd14ef234941c"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ],
```

Q12. Write a Mongo DB query to find the restaurants that achieved a score, more than 4 but less than 10.

Command Prompt - mongo

```
>
> db.restaurant.find({grades : { $elemMatch:{ "score":{$gt :4 , $lt :10}}}})
{ "_id" : ObjectId("602a7a3e641bd14ef2349412"), "name" : "ITC", "restaurant_id" : "20075", "address" : { "building" : "10", "coord" : [ -74.85, 50.84 ], "street" : "ITC Ave", "zipcode" : "560076" }, "borough" : "croydon", "cuisine" : "Bakery", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "B", "score" : 5 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 14 } ] }
{ "_id" : ObjectId("602a7c86641bd14ef2349413"), "name" : "Taj hotels", "restaurant_id" : "20076", "address" : { "building" : "11", "coord" : [ -23.877, 23.447 ], "street" : "Taj street", "zipcode" : "560077" }, "borough" : "Ealing", "cuisine" : "Hyderabadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "D", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 6 }, { "date" : { "$date" : 1358985600000 }, "grade" : "C", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 4 } ] }
{ "_id" : ObjectId("602a7e6a641bd14ef2349414"), "name" : "4 Seasons", "restaurant_id" : "20077", "address" : { "building" : "12", "coord" : [ -43.877, 53.447 ], "street" : "27th main", "zipcode" : "560078" }, "borough" : "Darling", "cuisine" : "Gujrati", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 7 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 8 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "B", "score" : 8 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 6 } ] }
{ "_id" : ObjectId("602a7ef1641bd14ef2349415"), "name" : "JP mariott", "restaurant_id" : "20078", "address" : { "building" : "13", "coord" : [ -63.877, 83.487 ], "street" : "29th main", "zipcode" : "560079" }, "borough" : "Gargling", "cuisine" : "Marvadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 10 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 8 } ] }
{ "_id" : ObjectId("602a7fb3641bd14ef2349416"), "name" : "Obreo", "restaurant_id" : "20079", "address" : { "building" : "14", "coord" : [ -83.877, 93.487 ], "street" : "30th main", "zipcode" : "560080" }, "borough" : "Lion", "cuisine" : "south indian", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 13 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 14 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 9 } ] }
{ "_id" : ObjectId("602a84bc641bd14ef2349417"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Tiger", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9c4641bd14ef2349419"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9d6641bd14ef234941a"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9e2641bd14ef234941b"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : "560081" }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9fe641bd14ef234941c"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ],
```

Q13. Write a Mongo DB query to find the restaurants which do not prepare any cuisine of 'American ' and achieved a grade point 'A' not belongs to the borough Croydon. The document must be displayed according to the cuisine in descending order.

```
db.restaurants.find( {
..
    "cuisine" : {$ne : "American "},
..
    "grades.grade" : "A",
..
    "borough": {$ne : "Brooklyn"}
..
}
..
).sort({"cuisine":-1})
"_id" : ObjectId("602aa9ab641bd14ef2349418"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ],
"street" : "31th main", "zipcode" : "560081" }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "
", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12
}, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }

db.restaurants.find( {
..
    "cuisine" : {$ne : "Hyderabadi"},
..
    "grades.grade" : "A",
..
    "borough": {$ne : "Brooklyn"}
..
}
..
).sort({"cuisine":-1})
"_id" : ObjectId("602aa9ab641bd14ef2349418"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ],
"street" : "31th main", "zipcode" : "560081" }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "
", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12
}, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
```


Q14. Update document zip code of all documents to 560070

```
> db.restaurant.update({},{$set:{'address.zipcode':560070}},{multi:true})
WriteResult({'nMatched': 10, 'nUpserted': 0, 'nModified': 10 })
> db.restaurant.find()
{ "_id" : ObjectId("602a7a3e641bd14ef2349412"), "name" : "ITC", "restaurant_id" : "20075", "address" : { "building" : "10", "coord" : [ -74.85, 50.84 ], "street" : "ITC Ave", "zipcode" : 560070 }, "borough" : "croydon", "cuisine" : "Bakery", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "B", "score" : 5 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 14 } ] }
{ "_id" : ObjectId("602a7c86641bd14ef2349413"), "name" : "Taj hotels", "restaurant_id" : "20076", "address" : { "building" : "11", "coord" : [ -23.877, 23.447 ], "street" : "Taj street", "zipcode" : 560070 }, "borough" : "Ealing", "cuisine" : "Hyderabadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "D", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 6 }, { "date" : { "$date" : 1358985600000 }, "grade" : "C", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 4 } ] }
{ "_id" : ObjectId("602a7e6a641bd14ef2349414"), "name" : "4 Seasons", "restaurant_id" : "20077", "address" : { "building" : "12", "coord" : [ -43.877, 53.447 ], "street" : "27th main", "zipcode" : 560070 }, "borough" : "Darling", "cuisine" : "Gujrati", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 7 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 8 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "B", "score" : 8 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 6 } ] }
{ "_id" : ObjectId("602a7ef1641bd14ef2349415"), "name" : "3P mariott", "restaurant_id" : "20078", "address" : { "building" : "13", "coord" : [ -63.877, 83.487 ], "street" : "29th main", "zipcode" : 560070 }, "borough" : "Gargling", "cuisine" : "Marvadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 10 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 8 } ] }
{ "_id" : ObjectId("602a7fb3641bd14ef2349416"), "name" : "Obreoi", "restaurant_id" : "20079", "address" : { "building" : "14", "coord" : [ -83.877, 93.487 ], "street" : "30th main", "zipcode" : 560070 }, "borough" : "Lion", "cuisine" : "south indian", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 11 }, { "date" : { "$date" : 1358985600000 }, "grade" : "B", "score" : 13 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 14 }, { "date" : { "$date" : 1299715200000 }, "grade" : "C", "score" : 9 } ] }
{ "_id" : ObjectId("602a84bc641bd14ef2349417"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : 560070 }, "borough" : "Tiger", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602a9a9c4641bd14ef2349419"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : 560070 }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
```

15. Update document zip code to 987456 of document where borough is Croydon.

```
> db.restaurant.update({"borough":"Ealing"},{$set:{"address.zipcode":987456},{multi:true})
WriteResult({"nMatched" : 5, "nUpserted" : 0, "nModified" : 5 })
> db.restaurant.find({"borough":"Ealing"})
{ "_id" : ObjectId("602a7c86641bd14ef2349413"), "name" : "Taj hotels", "restaurant_id" : "20076", "address" : { "building" : "11", "coord" : [ -23.877, 23.447 ], "street" : "Taj street", "zipcode" : 987456 }, "borough" : "Ealing", "cuisine" : "Hyderabadi", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "D", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "A", "score" : 6 }, { "date" : { "$date" : 1358985600000 }, "grade" : "C", "score" : 11 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 4 } ] }
{ "_id" : ObjectId("602aa9c4641bd14ef2349419"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : 987456 }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9d6641bd14ef234941a"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : 987456 }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9e2641bd14ef234941b"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : 987456 }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
{ "_id" : ObjectId("602aa9fe641bd14ef234941c"), "name" : "7 Seas", "restaurant_id" : "20080", "address" : { "building" : "15", "coord" : [ -103.877, 63.487 ], "street" : "31th main", "zipcode" : 987456 }, "borough" : "Ealing", "cuisine" : "malyali", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "B", "score" : 15 }, { "date" : { "$date" : 1378857600000 }, "grade" : "C", "score" : 18 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 12 }, { "date" : { "$date" : 1322006400000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1299715200000 }, "grade" : "A", "score" : 6 } ] }
>
```


Q16. Remove document where restaurant id is '12345'

```
WriteResult({ "nRemoved" : 0 })
> db.restaurant.remove({"restaurant_id":"20076"})
WriteResult({ "nRemoved" : 1 })
>
```

Q17. Remove sub document grades from document where zip code is 987456.

```
> db.restaurant.update({"address.zipcode":987456}, {$unset: {"grades": ""}}, {multi:true})
WriteResult({ "nMatched" : 4, "nUpserted" : 0, "nModified" : 4 })
> db.restaurant.find()
{ "_id" : ObjectId("602a7a3e641bd14ef2349412"), "name" : "ITC", "restaurant_id" : "20075", "address" : { "building" : "10", "coord" : [ -74.85, 50.84 ], "street" : "ITC Ave", "zipcode" : 560070 }, "borough" : "croydon", "cuisine" : "Bakery", "grades" : [ { "date" : { "$date" : 1393804800000 }, "grade" : "A", "score" : 4 }, { "date" : { "$date" : 1378857600000 }, "grade" : "B", "score" : 5 }, { "date" : { "$date" : 1358985600000 }, "grade" : "A", "score" : 10 }, { "date" : { "$date" : 1322006400000 }, "grade" : "C", "score" : 9 }, { "date" : { "$date" : 1299715200000 }, "grade" : "B", "score" : 14 } ] }
{ "_id" : ObjectId("602a7e6a641bd14ef2349414"), "name" : "4 Seasons", "restaurant_id" : "20077", "address" : { "building" : "12", "coord" : [ -43.877, 53.447
```

18. Create index on collection restaurant on column restaurant_id enforcing uniqueness

```
> db.restaurant.remove({"restaurant_id":20080})
WriteResult({ "nRemoved" : 0 })
> db.restaurant.remove({"restaurant_id":"20080"})
WriteResult({ "nRemoved" : 5 })
> db.restaurant.ensureIndex({"restaurant_id":1},{ "unique":true})
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 1,
  "numIndexesAfter" : 2,
  "ok" : 1
}
```

Q19. Create compound index on any 2 keys of collection restaurants.

```
> db.restaurant.ensureIndex({"borough":1, "name":1},{ "unique":true})
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 2,
  "numIndexesAfter" : 3,
  "ok" : 1
}
```

Q20. Drop database praxis.

```
>
> db.dropDatabase()
{ "dropped" : "praxis", "ok" : 1 }
>
```

Q21. Explain CAP theorem with example

CAP stands for Consistency, Availability and Partition Tolerance.

A distributed system always needs to be partition tolerant, we shouldn't be making a system where a network partition brings down the whole system.

So, a distributed system is always built Partition Tolerant.

So, In simple words, CAP theorem means if there is network partition and if you want your system to keep functioning you can provide either Availability or Consistency and not both.

Consistency means, if you write data to the distributed system, you should be able to read the same data at any point in time from any nodes of the system or simply return an error if data is in an inconsistent state. Never return inconsistent data.

Availability means the system should always perform reads/writes on any non-failing node of the cluster successfully without any error. This is availability is mainly associated with network partition. I.e. in the presence of network partition whether a node returns success response or an error for read/write operation.

Partition Tolerance means, if there is a partition between nodes or the parts of the cluster in a distributed system are not able to talk to each other, the system should still be functioning.

Q22. Explain NOSQL and Base theorem.

NoSQL, which stands for “not only SQL,” is an approach to database design that provides flexible schemas for the storage and retrieval of data beyond the traditional table structures found in relational databases. While NoSQL databases have existed for many years, NoSQL databases have only recently become more popular in the era of cloud, big data and high-volume web and mobile applications. They are chosen today for their attributes around scale, performance and ease of use. The most common types of NoSQL databases are key-value, document, and column and graph databases. It's important to emphasize that the "No" in "NoSQL" is an abbreviation for "not only" and not the actual word "No." This distinction is important not only because many NoSQL databases support SQL like queries, but because in a world of micro services and polyglot persistence, NoSQL and relational databases are now commonly used together in a single application.

BASE

NoSQL relies upon a softer model known as the BASE model. BASE (Basically Available, Soft state, Eventual consistency). Basically Available: Guarantees the availability of the data. There will be a response to any request (can be failure too). Soft state: The state of the system could change over time. Eventual consistency: The system will eventually become consistent once it stops receiving input. NoSQL databases give up the A, C and/or D requirements, and in return they improve scalability.

