→ update() command

a. Update command in mongodb is used to modify one or more documents in a collection
b. update()
    i. Syntax to use update()

```
db.collection_name.update(field_to_update, update_query)
```

In above syntax,

    ii. field_to_update : we specify the field in document to be updated
    iii. update_query : we specify the condition to be used to make modification
    iv. Example to use update()

```
db.restaurant.update({name:"Wendy'S"}, {$set:{restaurant_id:1}})
```

c. updateMany()
    i. If you want to update multiple documents, you'll use updateMany()
    ii. It'll help you to update multiple documents in a collection that matches specific condition
    iii. Example to use updateMany():

```
db.restaurant.updateMany({cuisine:"Bakery"}, {$set:{cuisine:"Fresh Bakery"}})
```

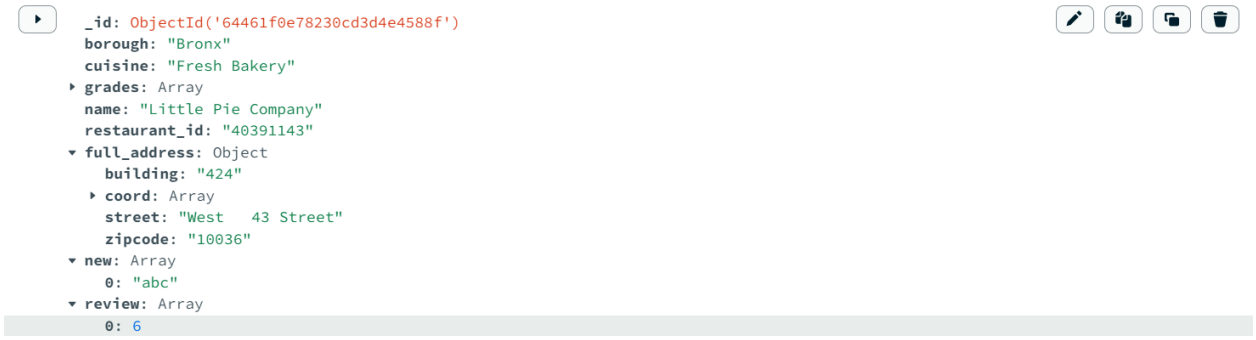
d. updateOne()
    i. To update a single document in a collection you can use updateOne()
    ii. Example to use updateOne():

```
db.restaurant.updateOne({_id:ObjectId('64461f0e78230cd3d4e4588f')}, {$set:{borough:"Bronx"}})
```

e. $set: operator
    i.

f. $push: operator
    i. We can use $push operator to push a new key-value pair
    ii. Example to use $push operator

```
db.restaurant.updateOne({_id:ObjectId('64461f0e78230cd3d4e4588f')}, {$push:{new:"abc", review:6}})
```



g. $unset: operator
    i. You can use $unset operator to remove all the values from a particular field

ii. Example to use $unset operator

```
>db.restaurant.updateOne({_id:ObjectId('64461f0e78230cd3d4e4588f')},
{$unset:{new:"", review:""}})
```

h. $rename: operator

i. You can use rename() to rename a field

ii. Example to use $rename operator

```
>db.restaurant.updateOne({_id:ObjectId('64461f0e78230cd3d4e4588f')},
{$rename:{'address':'full_address'}})
```

i. $addtoset: operator

i. This operator adds a value to an array unless the value is already present in the array , in which case $addToSet does nothing to that array.

ii. Example to use $addtoset operator

```
>db.restaurant.updateOne({_id:ObjectId('64461f0e78230cd3d4e4588f')},
{$addToSet:{"grades":5}})
```

j. $pop operator

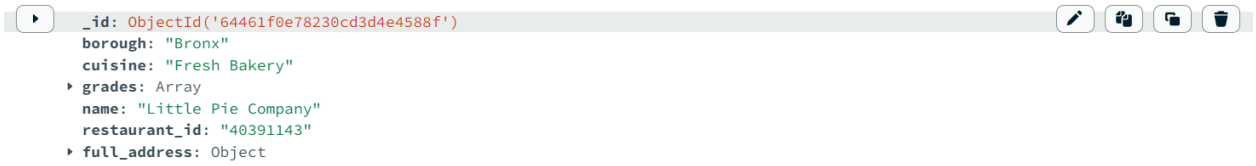
i. If you want to remove the first or last element of an array then use $pop operator

ii. It takes two values

1. ‘1’ is used to remove the last value
2. ‘-1’ is used to remove the first value

iii. Example to use $pop operator

```
>db.restaurant.updateOne({_id:ObjectId('64461f0e78230cd3d4e4588f')},
{$pop:{"grades":1}})
```



k. $pull operator
   i. $pull operator is used to remove all the existing instances or values from existing array
   ii. Syntax to use $pull operator

l. $pullAll operator
   i. $pullAll operator is used to remove multiple values
   ii. Syntax to use $pullAll operator

m. save()
   i. If you want to save the changes that you've made, then use save() method
   ii. Syntax to use save() method

```
>db.collection.save()
```

n. asa

→ remove()

a. remove()
   i. If you want to remove all the data from a collection, you'll use remove(), which will remove all the data from the collection
   ii. You've to pass `'{}'` in order to remove all data from collection
   iii. Syntax to use remove({}) :

```
>db.restaurant.remove({})
>db.restaurant.remove({"salary":2000})
```

   iv. You can also use conditional operators with remove() method

```
>db.restaurant.remove({"salary":{$lt:2000}})
```

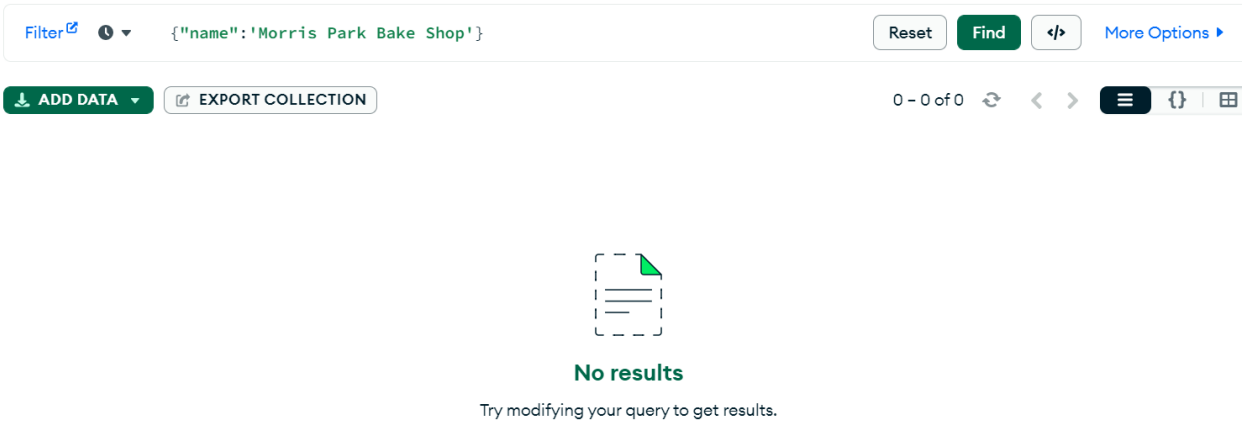
   v. You can check for two fields

```
>db.restaurant.remove({"name":"Wendy'S", borough:"Manhattan"})
>db.restaurant.remove({borough:{$in:["Manhattan", "Brooklyn"]}})
```

   vi. asa

b. remove({})
   i. Example to use remove({}) to remove specific field value:

```
>db.restaurant.remove({'name':'Morris Park Bake Shop'})
```



c. drop()
    i. Syntax to use drop to remove specific field value:

```
>db.restaurant.drop
```

d. dropDatabase()
    i. If you want to remove entire database, then use dropDatabase()
    ii. Syntax to use drop to remove specific field value:

```
db.restaurant.dropDatabase()
```

    iii. asa

e.
f. asa

→ Aggregation pipeline

a. In mongoDB, aggregation pipeline consists of stages and each stage is transforms tha document as they pass through pipeline
b. MongoDB aggregation pipeline uses following operators:
    i. $match operator
        1. It is used to filter documents in a collection based on specific condition
        2. It works similar to WHERE condition in MySQL
        3. The $match operator takes a query expression as an argument which may include 1 or more conditions and this will give the result of all the values that matches the condition
        4. Example to use $ match operator

```
>db.restaurant.aggregate([{ $match: { cuisine: 'Hamburgers' } }])
```

```
practice> db.restaurant.aggregate([{ $match: { cuisine: 'Hamburgers' } }])
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45582"),
    address: {
      building: '469',
      coord: [ -73.961704, 40.662942 ],
      street: 'Flatbush Avenue',
      zipcode: '11225'
    },
    borough: 'Brooklyn',
    cuisine: 'Hamburgers',
    grades: [
      {
        date: ISODate("2014-12-30T00:00:00.000Z"),
        grade: 'A',
        score: 8
      },
      {
        date: ISODate("2014-07-01T00:00:00.000Z"),
        grade: 'B',
        score: 23
      },
      {
        date: ISODate("2013-04-30T00:00:00.000Z"),
        grade: 'A',
        score: 12
      },
      {
```

```
>db.emp.aggregate([{$match:{salary:{$lt:87000}}}])
```

```
sample> db.emp.aggregate([{$match:{salary:{$lt:87000}}}])
[
  {
    _id: ObjectId("6090196dbb1cfc7842916d65"),
    name: 'Tom Williams',
    position: 'Sales Representative',
    department: 'Sales',
    salary: 85000
  },
  {
    _id: ObjectId("6090196dbb1cfc7842916d69"),
    name: 'Samuel Kim',
    position: 'Customer Service Representative',
    department: 'Customer Service',
    salary: 80000
  },
  {
    _id: ObjectId("6090196dbb1cfc7842916d6a"),
    name: 'Anna Lee',
    position: 'Graphic Designer',
    department: 'Design',
    salary: 85000
  }
]
```

ii. $project operator

1. This operator is used to select and transform the field to be returned in the query SELECT
2. It can be used to modify the structure of the document, rename the field and include/exclude the fields from the result
3. Example

```
db.emp.aggregate([{$project:{name:1, salary:1}}])
```

```
sample> db.emp.aggregate([{$project:{name:1, salary:1}}])
[
  {
    _id: ObjectId("6090196dbb1cfc7842916d61"),
    name: 'John Doe',
    salary: 90000
  },
  {
    _id: ObjectId("6090196dbb1cfc7842916d62"),
    name: 'Jane Smith',
    salary: 110000
  },
  {
    _id: ObjectId("6090196dbb1cfc7842916d63"),
    name: 'Bob Johnson',
    salary: 105000
  },
  {
    _id: ObjectId("6090196dbb1cfc7842916d64"),
    name: 'Sara Lee',
    salary: 95000
  },
  {
```

Here, '1' means that filed should be included in the result

4. To exclude field use '0' , Example

```
db.emp.aggregate([{$project:{name:0, salary:0}}])
```

```
sample> db.emp.aggregate([{$project:{name:0, salary:0}}])
[
  {
    _id: ObjectId("6090196dbb1cfc7842916d61"),
    position: 'Software Engineer',
    department: 'Engineering'
  },
  {
    _id: ObjectId("6090196dbb1cfc7842916d62"),
    position: 'Project Manager',
    department: 'Management'
  },
  {
    _id: ObjectId("6090196dbb1cfc7842916d63"),
    position: 'Marketing Manager',
    department: 'Marketing'
  },
  {
    _id: ObjectId("6090196dbb1cfc7842916d64"),
    position: 'Human Resources',
    department: 'Human Resources'
  },
  {
```

5. **Note:** you just mention only the fields which need to be included as '1', or all the fields which need to be excluded as '0', but don't mix including & excluding. Don't use it like this

❌`db.emp.aggregate([{$project:{name:1, salary:0}}])`❌

```
sample> db.emp.aggregate([{$project:{name:1, salary:0}}])
MongoServerError: Invalid $project :: caused by :: Cannot do exclusion on field salary in inclusion projection
sample>
```

iii. $unwind operator

1. This operator is used to break an array into individual documents
2. It creates new documents for each element in an array and duplicates values of the other fields in the original documents
3. Example

```
>db.restaurant.aggregate([{$unwind:"$grades"}])
```

```
practice> db.restaurant.aggregate([{$unwind:"$grades"}])
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45582"),
    address: {
      building: '469',
      coord: [ -73.961704, 40.662942 ],
      street: 'Flatbush Avenue',
      zipcode: '11225'
    },
    borough: 'Brooklyn',
    cuisine: 'Hamburgers',
    grades: { date: ISODate("2014-12-30T00:00:00.000Z"), grade: 'A', score: 8 },
    name: "Wendy'S",
    restaurant_id: 1
  },
  {
    _id: ObjectId("64461f0e78230cd3d4e45582"),
    address: {
      building: '469',
      coord: [ -73.961704, 40.662942 ],
      street: 'Flatbush Avenue',
      zipcode: '11225'
    },
    borough: 'Brooklyn',
    cuisine: 'Hamburgers',
```

iv. $group

1. This operator is used to group documents together based on condition and perform aggregate calculations on those groups\
2. It creates a new documents for each group and can be used with various aggregate operators like $sum, $avg, $min, $max, $count
3. Example:

```
>db.emp.aggregate([{$group:{_id:"$salary", count:{$sum:1}}}])
```

```
sample> db.emp.aggregate([{$group:{_id:"$salary", count:{$sum:1}}}])
[
  { _id: 90000, count: 1 },
  { _id: 95000, count: 2 },
  { _id: 120000, count: 1 },
  { _id: 100000, count: 1 },
  { _id: 110000, count: 1 },
  { _id: 80000, count: 1 },
  { _id: 85000, count: 2 },
  { _id: 105000, count: 1 }
]
```

v.

vi. asa

c. asa

→ Indexing in MongoDB

a. Indexes are very important in databases because indexes can make queries perform in an efficient way
b. If you have a collection with thousands of documents with no indexing. To find a particular document, we need to search all of the document. But if you have indexed the documents, then you limit the number of documents to be searched in a collection.
c. An index can either be based on one field or multiple fields in a collection
d. { _id:’23123’,
emp_id:’12345’,
emp_name:”abc”,

salary:9876,
dept_id:567
}

e. Example to create index using `createIndex()`:

```
>db.emp.createIndex({name:1})
```

```
sample> db.emp.createIndex({name:1})
name_1
```

```
>db.emp.createIndex({name:1, _id:1})
```

```
sample> db.emp.createIndex({name:1, _id:1})
name_1__id_1
```

f. Example to sow indexes using getIndexes():

```
>db.emp.getIndexes()
```

```
sample> db.emp.getIndexes()
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  { v: 2, key: { name: 1 }, name: 'name_1' },
  { v: 2, key: { name: 1, _id: 1 }, name: 'name_1__id_1' }
]
```

g. Example to sow indexes using getIndexes():

```
>db.emp.getIndices()
```

```
sample> db.emp.getIndices()
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  { v: 2, key: { name: 1 }, name: 'name_1' },
  { v: 2, key: { name: 1, _id: 1 }, name: 'name_1__id_1' }
]
```

h. asa

→ problem / challenge: WAQ to display all the documents in a collection

```
>db.emp.find()
```

→ problem / challenge: WAQ to display fields- restaurant_id , name, cuisine from all the documents

```
>db.restaurant.aggregate({$project:{name:1, restaurant_id:1, cuisine:1}})
```

```
practice> db.restaurant.aggregate({$project:{name:1, restaurant_id:1, cuisine:1}})
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45582"),
    cuisine: 'Hamburgers',
    name: "Wendy'S",
    restaurant_id: 1
  },
  {
    _id: ObjectId("64461f0e78230cd3d4e45583"),
    cuisine: 'Irish',
    name: 'Dj Reynolds Pub And Restaurant',
    restaurant_id: '30191841'
  },
  {
    _id: ObjectId("64461f0e78230cd3d4e45584"),
    cuisine: 'American ',
    name: 'Riviera Caterer',
    restaurant_id: '40356018'
  },
  {
    _id: ObjectId("64461f0e78230cd3d4e45585"),
    cuisine: 'Jewish/Kosher',
    name: 'Tov Kosher Kitchen',
    restaurant_id: '40356068'
  },
```

→ problem / challenge: WAQ to display all the fields excluding name & _id

```
>db.restaurant.aggregate({$project:{name:0, _id:0}})
```

```
practice> db.restaurant.aggregate({$project:{name:0, _id:0}})
[
  {
    address: {
      building: '469',
      coord: [ -73.961704, 40.662942 ],
      street: 'Flatbush Avenue',
      zipcode: '11225'
    },
    borough: 'Brooklyn',
    cuisine: 'Hamburgers',
    grades: [
      {
        date: ISODate("2014-12-30T00:00:00.000Z"),
        grade: 'A',
        score: 8
      },
      {
        date: ISODate("2014-07-01T00:00:00.000Z"),
        grade: 'B',
        score: 23
      },
      {
        date: ISODate("2013-04-30T00:00:00.000Z"),
        grade: 'A',
        score: 12
      },
      {
```

→ problem / challenge: WAQ to display all the fields- restaurant_id & cuisine, but excluding field name '_id' from all the documents

```
>db.restaurant.find({borough:"Brooklyn"})
```

```
practice> db.restaurant.find({borough:"Brooklyn"})
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45582"),
    address: {
      building: '469',
      coord: [ -73.961704, 40.662942 ],
      street: 'Flatbush Avenue',
      zipcode: '11225'
    },
    borough: 'Brooklyn',
    cuisine: 'Hamburgers',
    grades: [
      {
        date: ISODate("2014-12-30T00:00:00.000Z"),
        grade: 'A',
        score: 8
      },
      {
        date: ISODate("2014-07-01T00:00:00.000Z"),
        grade: 'B',
        score: 23
      },
      {
        date: ISODate("2013-04-30T00:00:00.000Z"),
        grade: 'A',
```

→ problem / challenge: WAQ to display all the restaurants in brooklyn

```
>db.restaurant.find({borough:"Brooklyn"}).limit(5)
```

```
practice> db.restaurant.find({borough:"Brooklyn"}).limit(5)
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45582"),
    address: {
      building: '469',
      coord: [ -73.961704, 40.662942 ],
      street: 'Flatbush Avenue',
      zipcode: '11225'
    },
    borough: 'Brooklyn',
    cuisine: 'Hamburgers',
    grades: [
      {
        date: ISODate("2014-12-30T00:00:00.000Z"),
        grade: 'A',
        score: 8
      },
      {
        date: ISODate("2014-07-01T00:00:00.000Z"),
        grade: 'B',
        score: 23
      },
      {
        date: ISODate("2013-04-30T00:00:00.000Z"),
        grade: 'A',
        score: 12
      },
      {
```

→ WAQ to display first five after skipping fist 5 which are in brooklyn

```
>db.restaurant.find({borough:"Brooklyn"}).skip(5).limit(5)
```

```
practice> db.restaurant.find({borough:"Brooklyn"}).skip(5).limit(5)
[
  {
    _id: ObjectId("64461f0e78230cd3d4e4558c"),
    address: {
      building: '7715',
      coord: [ -73.9973325, 40.61174889999999 ],
      street: '18 Avenue',
      zipcode: '11214'
    },
    borough: 'Brooklyn',
    cuisine: 'American ',
    grades: [
      {
        date: ISODate("2014-04-16T00:00:00.000Z"),
        grade: 'A',
        score: 5
      },
      {
        date: ISODate("2013-04-23T00:00:00.000Z"),
        grade: 'A',
        score: 2
      },
      {
        date: ISODate("2012-04-24T00:00:00.000Z"),
        grade: 'A',
        score: 5
      },
      {
        date: ISODate("2011-12-16T00:00:00.000Z")
```

→ WAQ to display restaurants which have scored more than 90(use elementMatch & $gt operator)

```
>db.restaurant.find({grades:{$elemMatch:{score:{$gt:90}}}})
```

```
practice> db.restaurant.find({grades:{$elemMatch:{score:{$gt:90}}}})
[
  {
    _id: ObjectId("64461f0e78230cd3d4e456df"),
    address: {
      building: '65',
      coord: [ -73.9782725, 40.7624022 ],
      street: 'West   54 Street',
      zipcode: '10019'
    },
    borough: 'Manhattan',
    cuisine: 'American ',
    grades: [
      {
        date: ISODate("2014-08-22T00:00:00.000Z"),
        grade: 'A',
        score: 11
      },
      {
        date: ISODate("2014-03-28T00:00:00.000Z"),
        grade: 'C',
        score: 131
      },
      {
        date: ISODate("2013-09-25T00:00:00.000Z"),
        grade: 'A',
        score: 11
      },
```

→ WAQ to display restaurants which have a score of greater than 80 and less than 100

```
>db.restaurant.find({grades:{$elemMatch:{$and:[{score:{$gt:80}},
{score:{$lt:100}}]}}})
```

```
practice> db.restaurant.find({grades:{$elemMatch:{$and:[{score:{$gt:80}}, {score:{$lt:100}}]}}})
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45780"),
    address: {
      building: '345',
      coord: [ -73.9864626, 40.7266739 ],
      street: 'East 6 Street',
      zipcode: '10003'
    },
    borough: 'Manhattan',
    cuisine: 'Indian',
    grades: [
      {
        date: ISODate("2014-09-15T00:00:00.000Z"),
        grade: 'A',
        score: 5
      },
      {
        date: ISODate("2014-01-14T00:00:00.000Z"),
        grade: 'A',
        score: 8
      },
      {
        date: ISODate("2013-05-30T00:00:00.000Z"),
        grade: 'A',
        score: 12
      }
```

```
>db.restaurant.find({grades:{$elemMatch:{score:{$gt:80, $lt:90}}}})
```

```
practice> db.restaurant.find({grades:{$elemMatch:{$and:[{score:{$gt:80}}, {score:{$lt:100}}]}}})
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45780"),
    address: {
      building: '345',
      coord: [ -73.9864626, 40.7266739 ],
      street: 'East 6 Street',
      zipcode: '10003'
    },
    borough: 'Manhattan',
    cuisine: 'Indian',
    grades: [
      {
        date: ISODate("2014-09-15T00:00:00.000Z"),
        grade: 'A',
        score: 5
      },
      {
        date: ISODate("2014-01-14T00:00:00.000Z"),
        grade: 'A',
        score: 8
      },
      {
        date: ISODate("2013-05-30T00:00:00.000Z"),
        grade: 'A',
        score: 12
      },
      {
```

→ WAQ to display restaurants which does not prepare any cuisine of ‘American’ and their grade is more than 70

```
>db.restaurant.find({$and:[ {cuisine:{$ne:"American "}},
{'grades.score':{$gt:70}} ] })
```

```
practice> db.restaurant.find({$and:[ {cuisine:{$ne:"American "}}, {'grades.score':{$gt:70}} ] })
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45780"),
    address: {
      building: '345',
      coord: [ -73.9864626, 40.7266739 ],
      street: 'East 6 Street',
      zipcode: '10003'
    },
    borough: 'Manhattan',
    cuisine: 'Indian',
    grades: [
      {
        date: ISODate("2014-09-15T00:00:00.000Z"),
        grade: 'A',
        score: 5
      },
      {
        date: ISODate("2014-01-14T00:00:00.000Z"),
        grade: 'A',
        score: 8
      },
      {
        date: ISODate("2013-05-30T00:00:00.000Z"),
        grade: 'A',
        score: 12
      },
```

→ WAQ to display restaurant_id, name, cuisine for those restaurants which contains ‘ces’ as the last three characters of its name

```
>db.restaurant.find({name:{$regex:/ces$/}}, {restaurant_id:1, name:1, cuisine:1})
```

```
practice> db.restaurant.find({name:{$regex:/ces$/}}, {restaurant_id:1, name:1, cuisine:1})
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45a14"),
    cuisine: 'American ',
    name: 'Pieces',
    restaurant_id: '40399910'
  },
  {
    _id: ObjectId("64461f0e78230cd3d4e45ad3"),
    cuisine: 'American ',
    name: 'S.M.R Restaurant Services',
    restaurant_id: '40403857'
  },
  {
    _id: ObjectId("64461f0e78230cd3d4e45ad9"),
    cuisine: 'American ',
    name: 'Good Shepherd Services',
    restaurant_id: '40403989'
  },
  {
    _id: ObjectId("64461f0f78230cd3d4e45f8c"),
    cuisine: 'Ice Cream, Gelato, Yogurt, Ices',
    name: "The Ice Box-Ralph'S Famous Italian Ices",
    restaurant_id: '40690899'
  },
  {
    _id: ObjectId("64461f0f78230cd3d4e4618e"),
```

→ WAQ to find a restaurant which doesn't prepare cuisine “American” and achieved a grade point ‘A’ and does not belong to “Brooklyn” . display the document in descending order of cuisine

```
>db.restaurant.find({cuisine:{$ne:"American "}})
>db.restaurant.find({$and:[{cuisine:{$ne:"American "}},{}, {} ]})
>db.restaurant.find({$and:[{cuisine:{$ne:"American
"}},{'grades.grade':"A"}, {} ]})
```

```
>db.restaurant.find({$and:[{cuisine:{$ne:"American
"}},{'grades.grade':"A"}, {borough:{$ne:"Brooklyn"}} ]})
>db.restaurant.find({$and:[{cuisine:{$ne:"American
"}},{'grades.grade':"A"}, {borough:{$ne:"Brooklyn"}}
]}).sort({cuisine:-1})
```

```
practice> db.restaurant.find({$and:[{cuisine:{$ne:"American "}},{'grades.grade':"A"}, {borough:{$ne:"Brooklyn"}} ]}).sor
t({cuisine:-1})
[
  {
    _id: ObjectId("64461f0e78230cd3d4e45c8d"),
    address: {
      building: '89',
      coord: [ -73.9995899, 40.7168015 ],
      street: 'Baxter Street',
      zipcode: '10013'
    },
    borough: 'Manhattan',
    cuisine: 'Vietnamese/Cambodian/Malaysia',
    grades: [
      {
        date: ISODate("2014-08-21T00:00:00.000Z"),
        grade: 'A',
        score: 13
      },
      {
        date: ISODate("2013-08-31T00:00:00.000Z"),
        grade: 'A',
        score: 13
      },
      {
        date: ISODate("2013-04-11T00:00:00.000Z"),
        grade: 'C',
        score: 3
      },
```

→ WAQ to display the cuisine which is most likely to receive ‘C’ grade

```
>db.restaurant.aggregate({$match:{'grades.grade':"C"}})
>
```

>

→ WAQ to

→