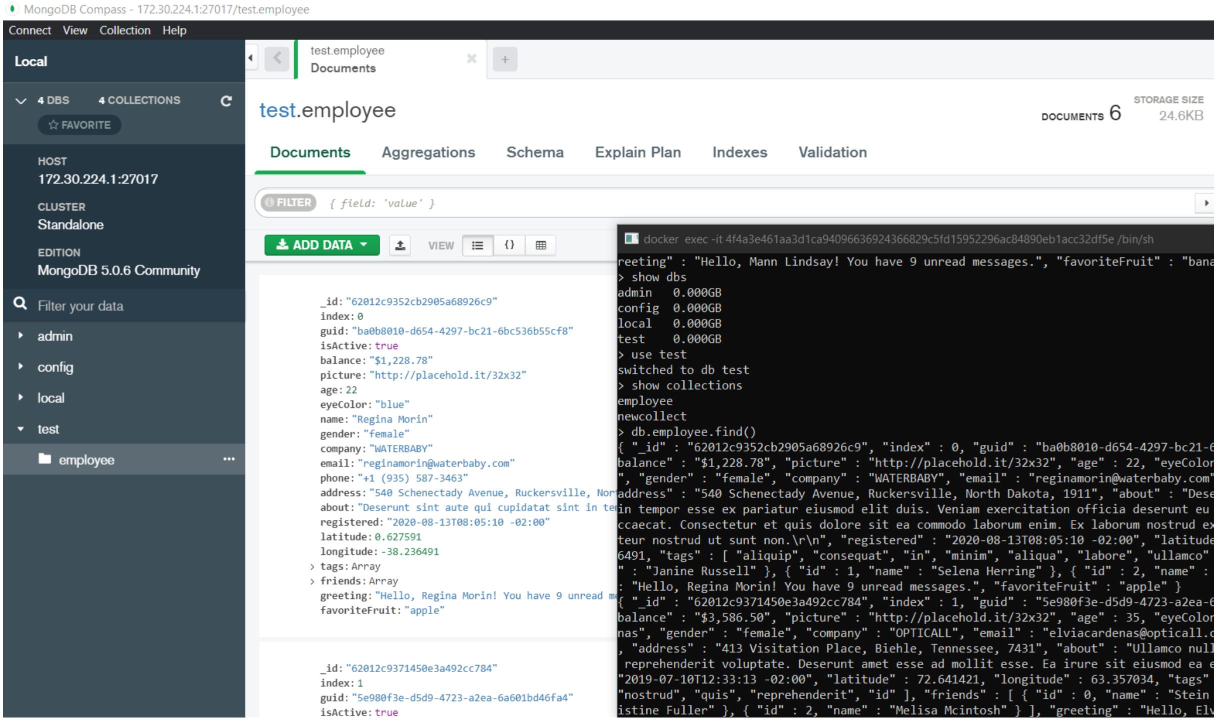
Exercice 1

Step1

db.employee.insert({"adress": "", "salary":"", "bonus":"", "primeInformation":""})

step2

Connexion entre mongodbCompass et docker. On importe un json avec ensuite.



MongoDB Compass - 172.30.224.1:27017/test.employee

HOST 172.30.224.1:27017

CLUSTER Standalone

EDITION MongoDB 5.0.6 Community

```
_id: "62012c9352cb2905a68926c9"
index: 0
guid: "ba0b8010-d654-4297-bc21-6bc536b55cf8"
isActive: true
balance: "$1,228.78"
picture: "http://placehold.it/32x32"
age: 22
eyeColor: "blue"
name: "Regina Morin"
gender: "female"
company: "WATERBABY"
email: "reginamorin@waterbaby.com"
phone: "+1 (935) 587-3463"
address: "540 Schenectady Avenue, Ruckersville, Nor
about: "Deserunt sint aute qui cupidatat sint in te
registered: "2020-08-13T08:05:10 -02:00"
latitude: 0.627591
longitude: -38.236491
> tags: Array
> friends: Array
greeting: "Hello, Regina Morin! You have 9 unread m
favoriteFruit: "apple"

_id: "62012c9371450e3a492cc784"
index: 1
guid: "5e980f3e-d5d9-4723-a2ea-6a601bd46fa4"
isActive: true
```

docker exec -it 4f4a3e461aa3d1ca94096636924366829c5fd15952296ac84890eb1acc32df5e /bin/sh

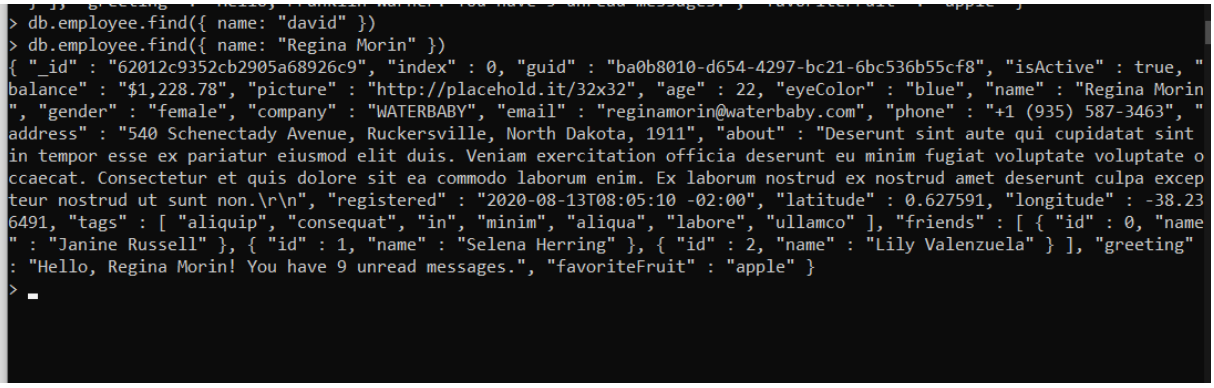
```
reeting" : "Hello, Mann Lindsay! You have 9 unread messages.", "favoriteFruit" : "bana
> show dbs
admin   0.000GB
config  0.000GB
local   0.000GB
test    0.000GB
> use test
switched to db test
> show collections
employee
newcollect
> db.employee.find()
{ "_id" : "62012c9352cb2905a68926c9", "index" : 0, "guid" : "ba0b8010-d654-4297-bc21-6
balance" : "$1,228.78", "picture" : "http://placehold.it/32x32", "age" : 22, "eyeColor
", "gender" : "female", "company" : "WATERBABY", "email" : "reginamorin@waterbaby.com"
address" : "540 Schenectady Avenue, Ruckersville, North Dakota, 1911", "about" : "Dese
in tempor esse ex pariatur eiusmod elit duis. Veniam exercitation officia deserunt eu
ccaecat. Consectetur et quis dolore sit ea commodo laborum enim. Ex laborum nostrud ex
teur nostrud ut sunt non.\r\n", "registered" : "2020-08-13T08:05:10 -02:00", "latitude
6491, "tags" : [ "aliquip", "consequat", "in", "minim", "aliqua", "labore", "ullamco"
" : "Janine Russell" }, { "id" : 1, "name" : "Selena Herring" }, { "id" : 2, "name" :
: "Hello, Regina Morin! You have 9 unread messages.", "favoriteFruit" : "apple" }
{ "_id" : "62012c9371450e3a492cc784", "index" : 1, "guid" : "5e980f3e-d5d9-4723-a2ea-6
balance" : "$3,586.50", "picture" : "http://placehold.it/32x32", "age" : 35, "eyeColor
nas", "gender" : "female", "company" : "OPTICALL", "email" : "elviacardenas@opticall.c
, "address" : "413 Visitation Place, Biehle, Tennessee, 7431", "about" : "Ullamco null
 reprehenderit voluptate. Deserunt amet esse ad mollit esse. Ea irure sit eiusmod ea e
"2019-07-10T12:33:13 -02:00", "latitude" : 72.641421, "longitude" : 63.357034, "tags"
"nostrud", "quis", "reprehenderit", "id" ], "friends" : [ { "id" : 0, "name" : "Stein
istine Fuller" }, { "id" : 2, "name" : "Melisa Mcintosh" } ], "greeting" : "Hello, Elv
```

Exercice 2

Step1

J'ai changé le nom pour qu'il trouve quelque chose :

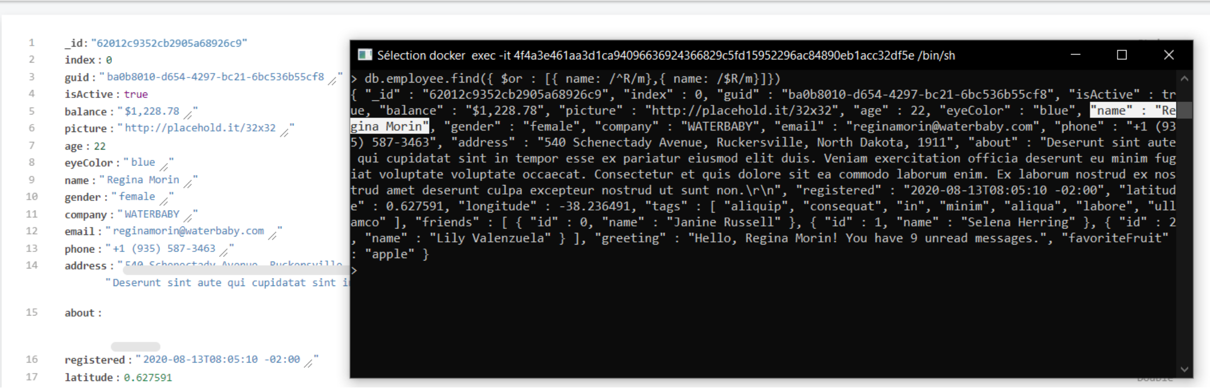
db.employee.find({ name: "Regina Morin" })



```
> db.employee.find({ name: "david" })
> db.employee.find({ name: "Regina Morin" })
{ "_id" : "62012c9352cb2905a68926c9", "index" : 0, "guid" : "ba0b8010-d654-4297-bc21-6bc536b55cf8", "isActive" : true, "
balance" : "$1,228.78", "picture" : "http://placehold.it/32x32", "age" : 22, "eyeColor" : "blue", "name" : "Regina Morin
", "gender" : "female", "company" : "WATERBABY", "email" : "reginamorin@waterbaby.com", "phone" : "+1 (935) 587-3463", "
address" : "540 Schenectady Avenue, Ruckersville, North Dakota, 1911", "about" : "Deserunt sint aute qui cupidatat sint
in tempor esse ex pariatur eiusmod elit duis. Veniam exercitation officia deserunt eu minim fugiat voluptate voluptate o
ccaecat. Consectetur et quis dolore sit ea commodo laborum enim. Ex laborum nostrud ex nostrud amet deserunt culpa excep
teur nostrud ut sunt non.\r\n", "registered" : "2020-08-13T08:05:10 -02:00", "latitude" : 0.627591, "longitude" : -38.23
6491, "tags" : [ "aliquip", "consequat", "in", "minim", "aliqua", "labore", "ullamco" ], "friends" : [ { "id" : 0, "name
" : "Janine Russell" }, { "id" : 1, "name" : "Selena Herring" }, { "id" : 2, "name" : "Lily Valenzuela" } ], "greeting"
: "Hello, Regina Morin! You have 9 unread messages.", "favoriteFruit" : "apple" }
> _
```

Step 2

On utilise R car nous n’avons pas de D
db.employee.find({ $or : [{ name: /^R/m},{ name: /$R/m}]})

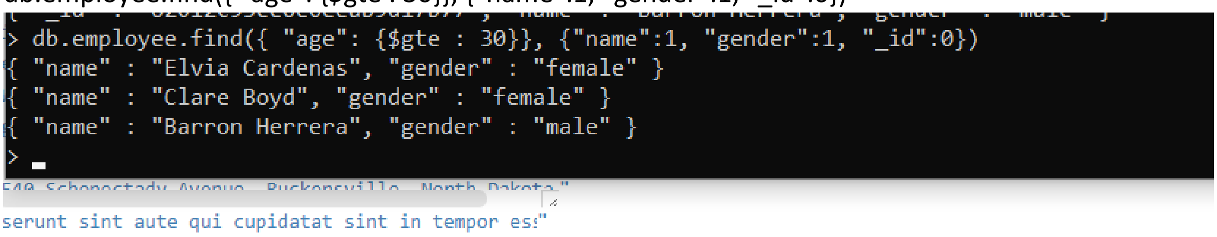


```
_id: "62012c9352cb2905a68926c9"
index : 0
guid : "ba0b8010-d654-4297-bc21-6bc536b55cf8"
isActive : true
balance : "$1,228.78"
picture : "http://placehold.it/32x32"
age : 22
eyeColor : "blue"
name : "Regina Morin"
gender : "female"
company : "WATERBABY"
email : "reginamorin@waterbaby.com"
phone : "+1 (935) 587-3463"
address : "540 Schenectady Avenue, Ruckersville
          "Deserunt sint aute qui cupidatat sint i
about :
registered : "2020-08-13T08:05:10 -02:00"
latitude : 0.627591
```

Sélection docker exec -it 4f4a3e461aa3d1ca940966369243668 29c5fd15952296ac84890eb1acc32df5e /bin/sh

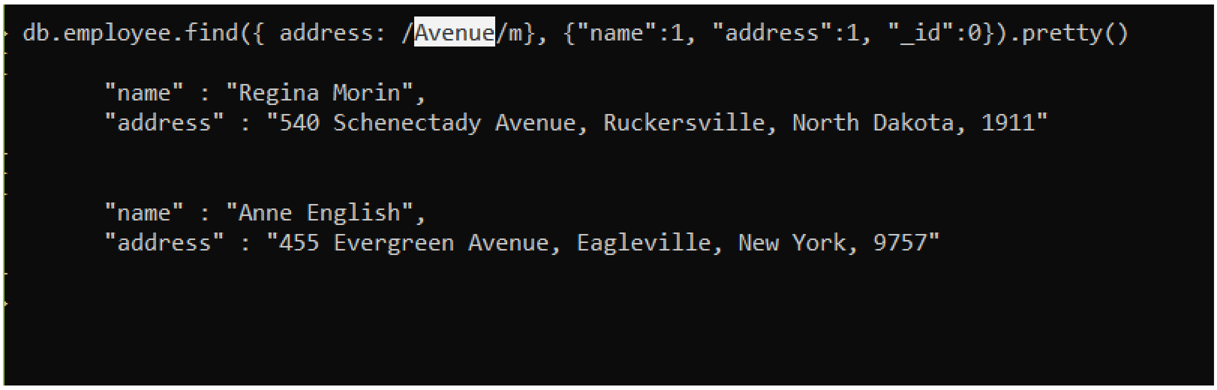
```
> db.employee.find({ $or : [{ name: /^R/m},{ name: /$R/m}]})
{ "_id" : "62012c9352cb2905a68926c9", "index" : 0, "guid" : "ba0b8010-d654-4297-bc21-6bc536b55cf8", "isActive" : tr
ue, "balance" : "$1,228.78", "picture" : "http://placehold.it/32x32", "age" : 22, "eyeColor" : "blue", "name" : "Re
gina Morin", "gender" : "female", "company" : "WATERBABY", "email" : "reginamorin@waterbaby.com", "phone" : "+1 (93
5) 587-3463", "address" : "540 Schenectady Avenue, Ruckersville, North Dakota, 1911", "about" : "Deserunt sint aute
 qui cupidatat sint in tempor esse ex pariatur eiusmod elit duis. Veniam exercitation officia deserunt eu minim fug
iat voluptate voluptate occaecat. Consectetur et quis dolore sit ea commodo laborum enim. Ex laborum nostrud ex nos
trud amet deserunt culpa excepteur nostrud ut sunt non.\r\n", "registered" : "2020-08-13T08:05:10 -02:00", "latitud
e" : 0.627591, "longitude" : -38.236491, "tags" : [ "aliquip", "consequat", "in", "minim", "aliqua", "labore", "ull
amco" ], "friends" : [ { "id" : 0, "name" : "Janine Russell" }, { "id" : 1, "name" : "Selena Herring" }, { "id" : 2
, "name" : "Lily Valenzuela" } ], "greeting" : "Hello, Regina Morin! You have 9 unread messages.", "favoriteFruit"
: "apple" }
>
```

Step 3
On a un peu modifié pour l’adapter à notre base
db.employee.find({ "age": {$gte : 30}}, {"name":1, "gender":1, "_id":0})



```
> db.employee.find({ "age": {$gte : 30}}, {"name":1, "gender":1, "_id":0})
{ "name" : "Elvia Cardenas", "gender" : "female" }
{ "name" : "Clare Boyd", "gender" : "female" }
{ "name" : "Barron Herrera", "gender" : "male" }
> _
540 Schenectady Avenue, Ruckersville, North Dakota,"
serunt sint aute qui cupidatat sint in tempor es:"
```

Step 4
On cherche Avenue et on affiche name et address qui correspond.
db.employee.find({ address: /Avenue/m}, {"name":1, "address":1, "_id":0}).pretty()



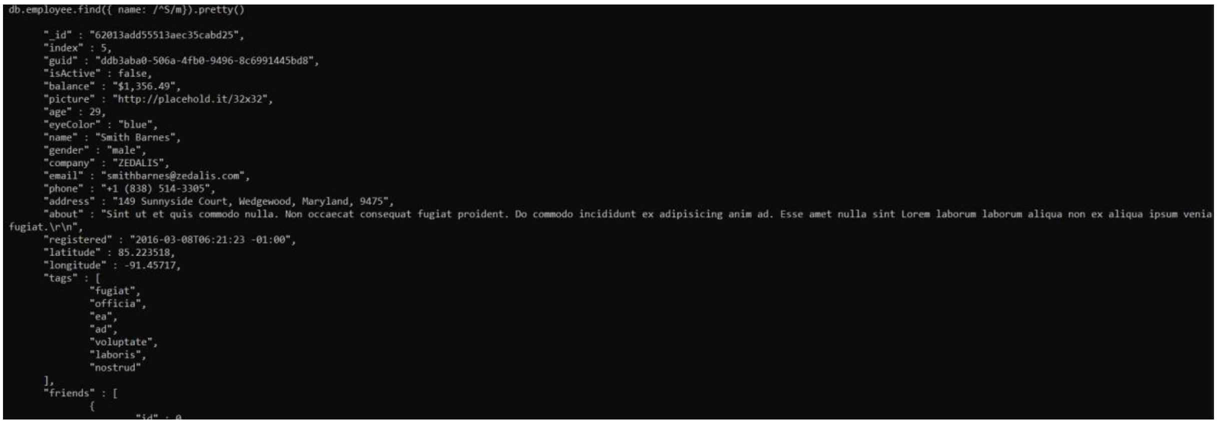
```
 db.employee.find({ address: /Avenue/m}, {"name":1, "address":1, "_id":0}).pretty()

        "name" : "Regina Morin",
        "address" : "540 Schenectady Avenue, Ruckersville, North Dakota, 1911"


        "name" : "Anne English",
        "address" : "455 Evergreen Avenue, Eagleville, New York, 9757"
```

Exercice 2.
On génère un doc identique au premier mais avec plus de données.

Step2
db.employee.find({ name: /^S/m}).pretty()



```
db.employee.find({ name: /^S/m}).pretty()

        "_id" : "62013add55513aec35cabd25",
        "index" : 5,
        "guid" : "ddb3aba0-506a-4fb0-9496-8c6991445bd8",
        "isActive" : false,
        "balance" : "$1,356.49",
        "picture" : "http://placehold.it/32x32",
        "age" : 29,
        "eyeColor" : "blue",
        "name" : "Smith Barnes",
        "gender" : "male",
        "company" : "ZEDALIS",
        "email" : "smithbarnes@zedalis.com",
        "phone" : "+1 (838) 514-3305",
        "address" : "149 Sunnyside Court, Wedgewood, Maryland, 9475",
        "about" : "Sint ut et quis commodo nulla. Non occaecat consequat fugiat proident. Do commodo incididunt ex adipisicing anim ad. Esse amet nulla sint Lorem laborum laborum aliqua non ex aliqua ipsum venia
fugiat.\r\n",
        "registered" : "2016-03-08T06:21:23 -01:00",
        "latitude" : 85.223518,
        "longitude" : -91.45717,
        "tags" : [
                "fugiat",
                "officia",
                "ea",
                "ad",
                "voluptate",
                "laboris",
                "nostrud"
        ],
        "friends" : [
                {
```

db.employee.find({ name: /$k/m}).pretty()
db.employee.find({ name: /s/m}).pretty()

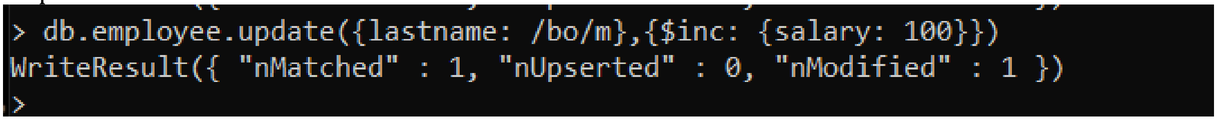
db. employee.find({name: {$type: 'string'}}).forEach(function(item) { if (item.name) {var lastname = item.name.split(' ')[0].replace(',', '');var firstname = item.name.split(' ')[1];db. employee.update({_id: item._id},{$set: {lastname: lastname, firstname: firstname}}) }})

db.employee.find({ $or : [{ firstname: /^D/m},{ firstname: /$d/m}]})

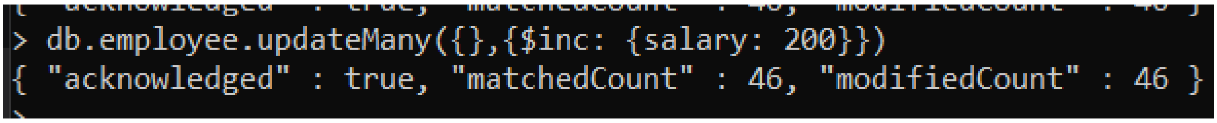
db.employee.find({ $or : [{ firstname: /^A/m},{ firstname: /$A/m},{ firstname: /^E/m},{ firstname: /$E/m},{ firstname: /^I/m},{ firstname: /$I/m},{ firstname: /^O/m},{ firstname: /$O/m},{ firstname: /^U/m},{ firstname: /$U/m},{ firstname: /^Y/m},{ firstname: /$Y/m}]})

db.employee.find().sort({ 'registered': 1 }).limit(3).pretty()

Step3



```
> db.employee.update({lastname: /bo/m},{$inc: {salary: 100}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
>
```



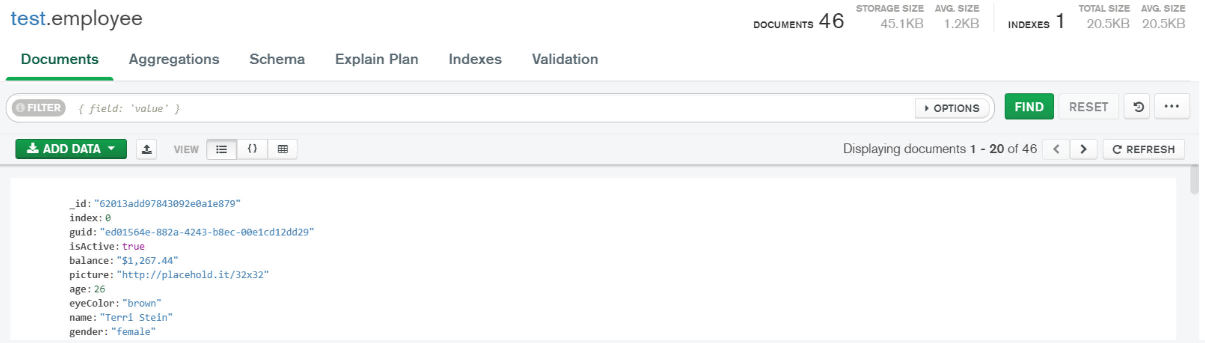
```
> db.employee.updateMany({},{$inc: {salary: 200}})
{ "acknowledged" : true, "matchedCount" : 46, "modifiedCount" : 46 }
```

Manque:
-Give a bonus of 100 euros to all employees who have no bonus and whose place of residence is different from Toulouse, Bordeaux and Paris
-Increment by 200 euros the premium of employees already having the bonus 9ield
-Make an request to update an old address to a new address for a given employee

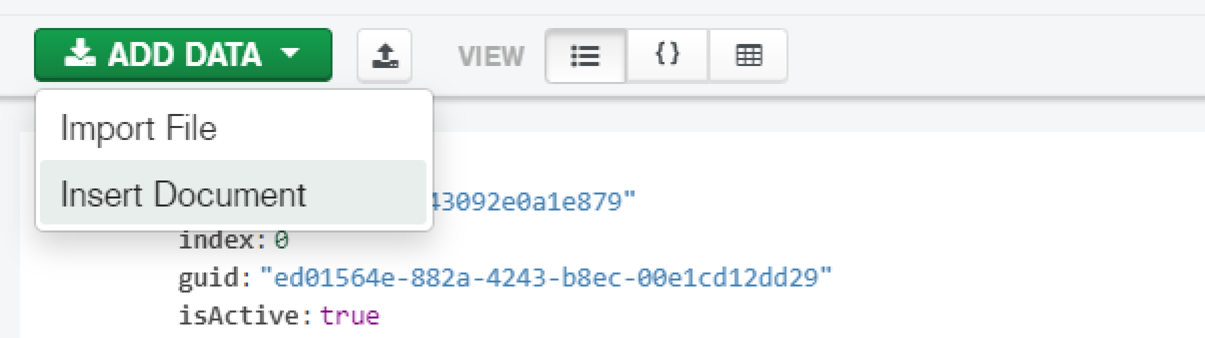
Exercice 3

Step 1

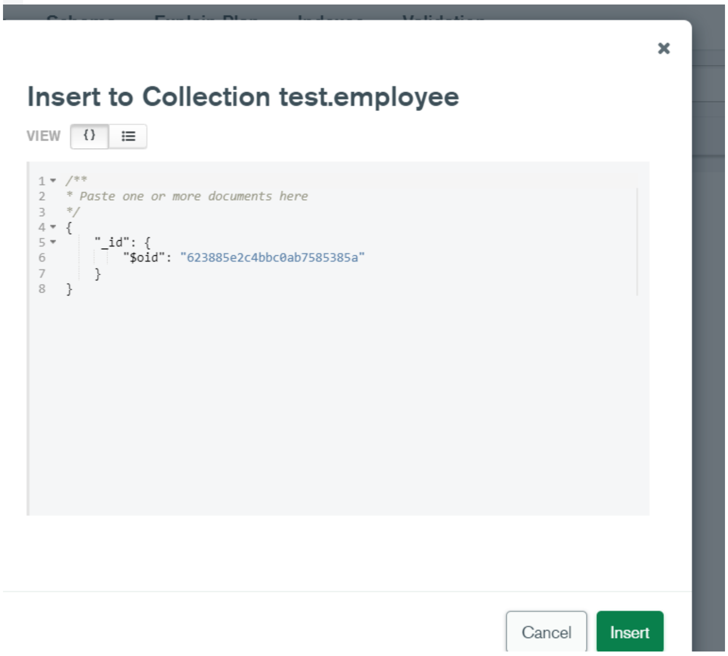
On utilise MongoDb Compass pour importer massivement :



```
_id: "62013add97843092e0a1e879"
index: 0
guid: "ed01564e-882a-4243-b8ec-00e1cd12dd29"
isActive: true
balance: "$1,267.44"
picture: "http://placehold.it/32x32"
age: 26
eyeColor: "brown"
name: "Terri Stein"
gender: "female"
```



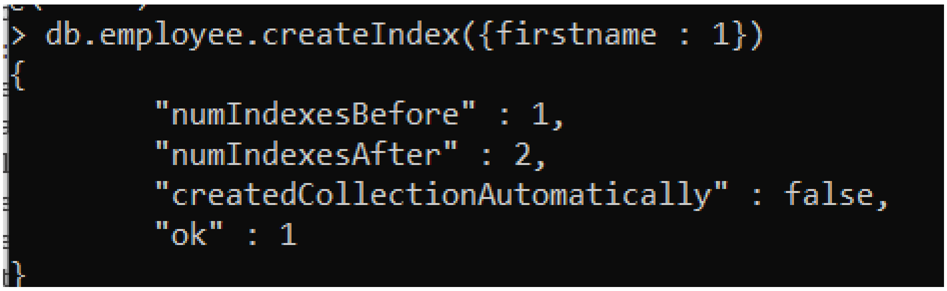
```
43092e0a1e879"
index: 0
guid: "ed01564e-882a-4243-b8ec-00e1cd12dd29"
isActive: true
```



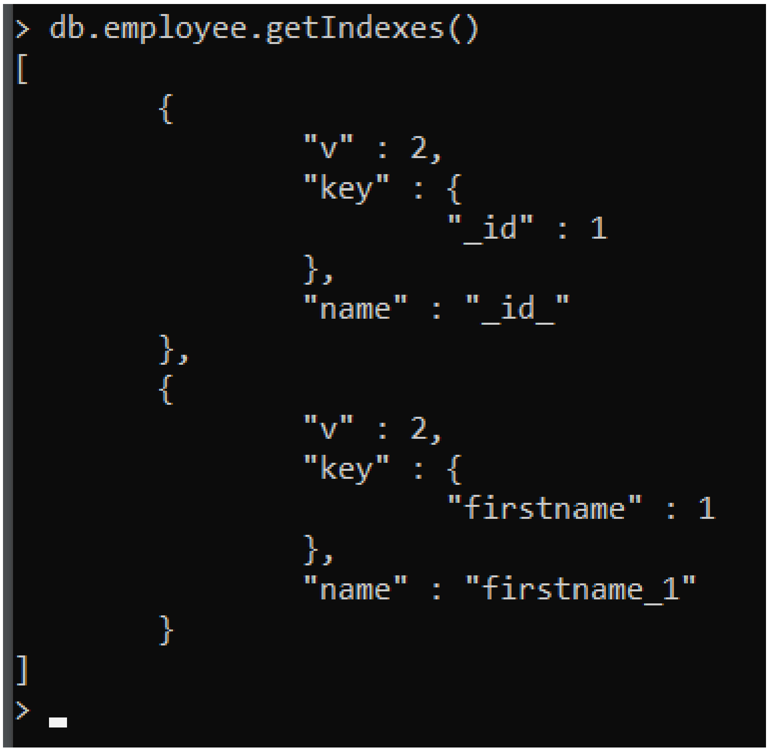
```
/**
 * Paste one or more documents here
 */
{
    "_id": {
        "$oid": "623885e2c4bbc0ab7585385a"
    }
}
```

Step 2

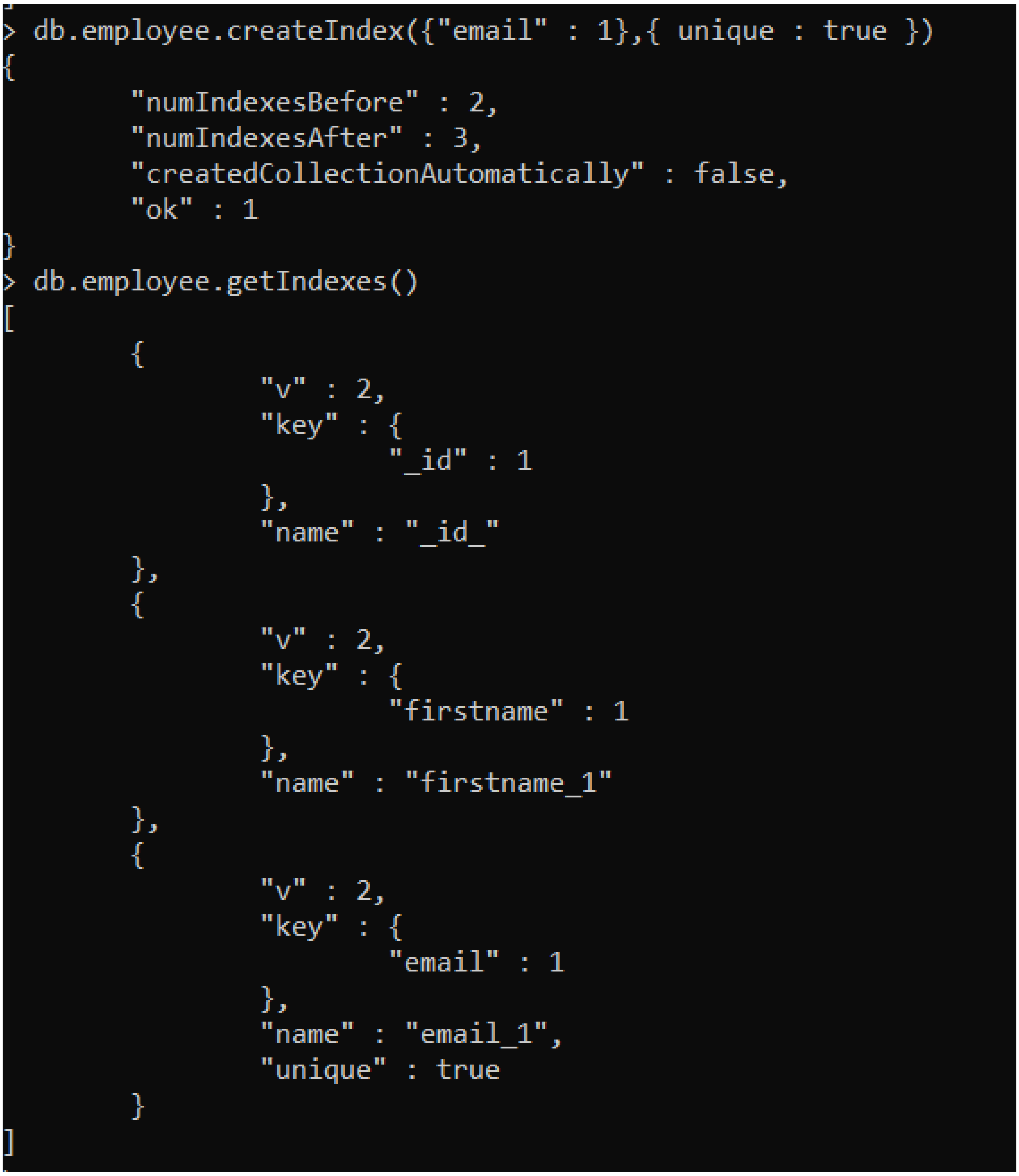
db.employee.find({ " entry": {$lte : “2021-02-21”}}, {"name":1, "gender":1, "_id":0}) step3



```
> db.employee.createIndex({firstname : 1})
{
        "numIndexesBefore" : 1,
        "numIndexesAfter" : 2,
        "createdCollectionAutomatically" : false,
        "ok" : 1
}
```

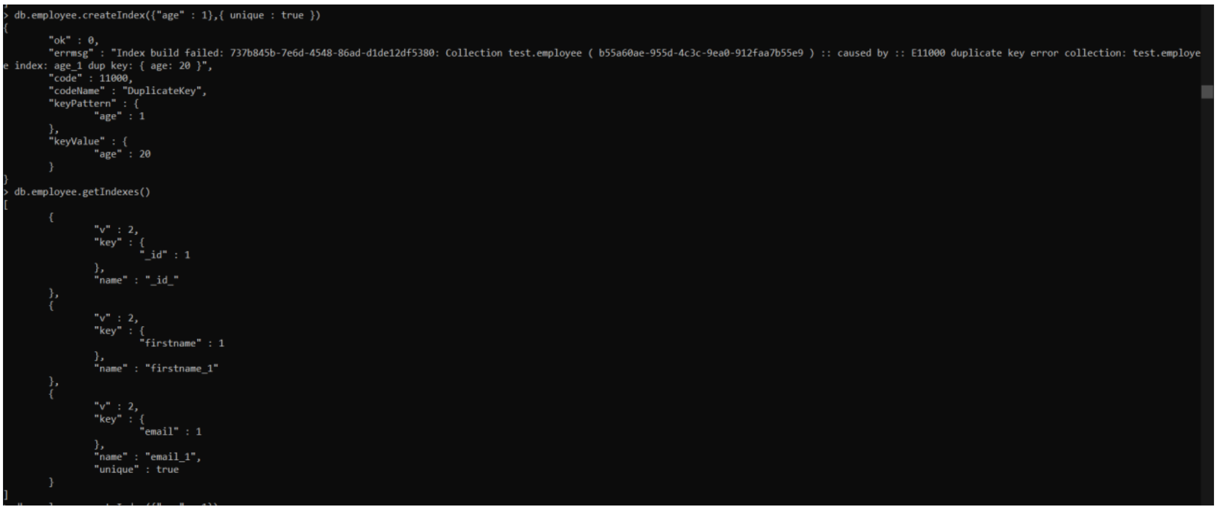


```
> db.employee.getIndexes()
[
        {
                "v" : 2,
                "key" : {
                        "_id" : 1
                },
                "name" : "_id_"
        },
        {
                "v" : 2,
                "key" : {
                        "firstname" : 1
                },
                "name" : "firstname_1"
        }
]
>
```



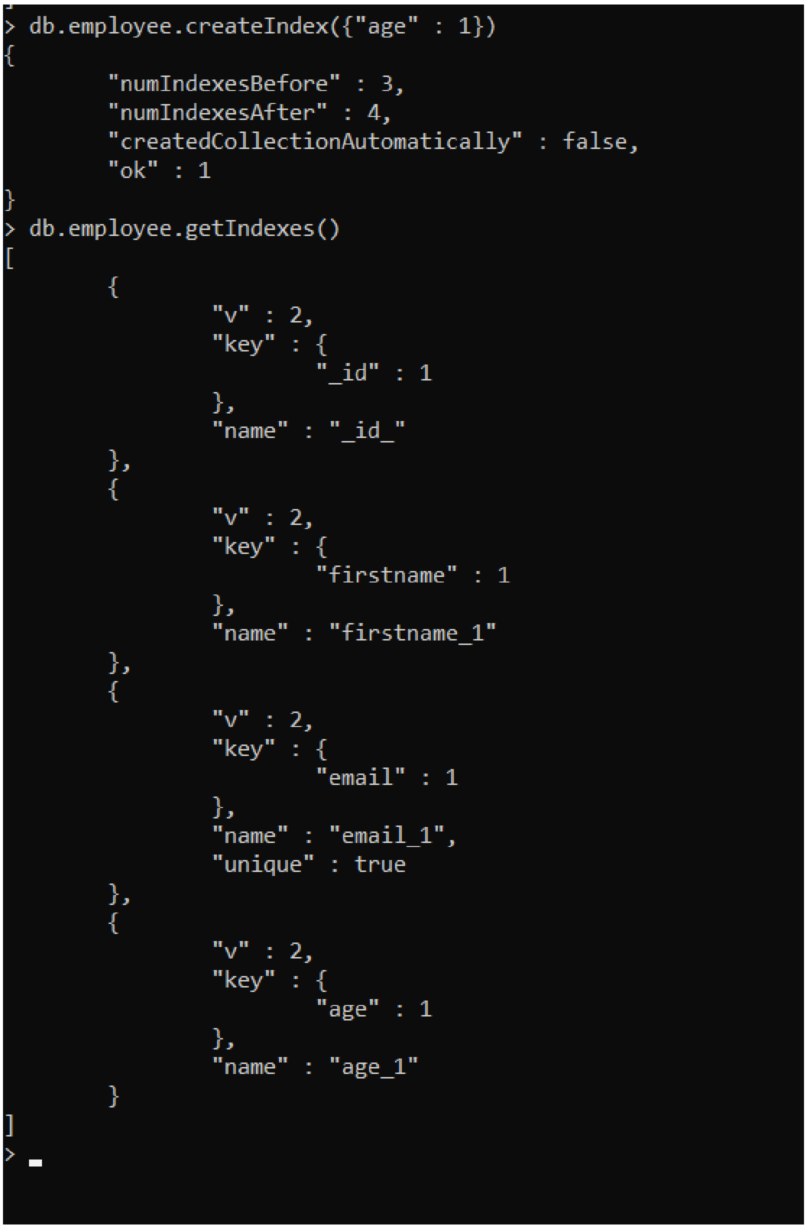
```
> db.employee.createIndex({"email" : 1},{ unique : true })
{
        "numIndexesBefore" : 2,
        "numIndexesAfter" : 3,
        "createdCollectionAutomatically" : false,
        "ok" : 1
}
> db.employee.getIndexes()
[
        {
                "v" : 2,
                "key" : {
                        "_id" : 1
                },
                "name" : "_id_"
        },
        {
                "v" : 2,
                "key" : {
                        "firstname" : 1
                },
                "name" : "firstname_1"
        },
        {
                "v" : 2,
                "key" : {
                        "email" : 1
                },
                "name" : "email_1",
                "unique" : true
        }
]
```

Test: impossible de créer un autre unique index :



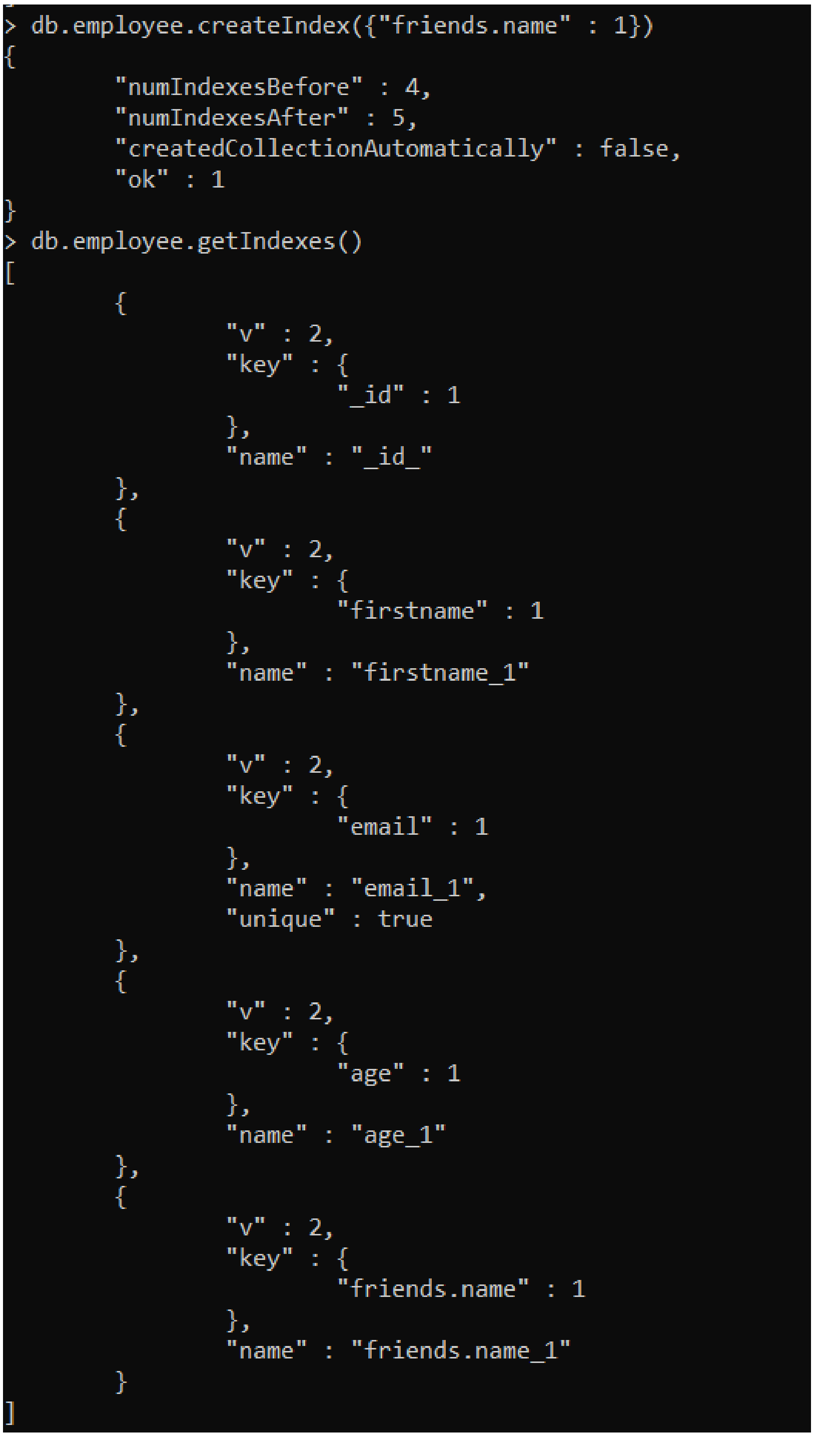
```
> db.employee.createIndex({"age" : 1},{ unique : true })
{
        "ok" : 0,
        "errmsg" : "Index build failed: 737b845b-7e6d-4548-86ad-d1de12df5380: Collection test.employee ( b55a60ae-955d-4c3c-9ea0-912faa7b55e9 ) :: caused by :: E11000 duplicate key error collection: test.employe
e index: age_1 dup key: { age: 20 }",
        "code" : 11000,
        "codeName" : "DuplicateKey",
        "keyPattern" : {
                "age" : 1
        },
        "keyValue" : {
                "age" : 20
        }
}
> db.employee.getIndexes()
[
        {
                "v" : 2,
                "key" : {
                        "_id" : 1
                },
                "name" : "_id_"
        },
        {
                "v" : 2,
                "key" : {
                        "firstname" : 1
                },
                "name" : "firstname_1"
        },
        {
                "v" : 2,
                "key" : {
                        "email" : 1
                },
                "name" : "email_1",
                "unique" : true
        }
]
```

Mais on peut créer d’autre index classique



```
> db.employee.createIndex({"age" : 1})
{
        "numIndexesBefore" : 3,
        "numIndexesAfter" : 4,
        "createdCollectionAutomatically" : false,
        "ok" : 1
}
> db.employee.getIndexes()
[
        {
                "v" : 2,
                "key" : {
                        "_id" : 1
                },
                "name" : "_id_"
        },
        {
                "v" : 2,
                "key" : {
                        "firstname" : 1
                },
                "name" : "firstname_1"
        },
        {
                "v" : 2,
                "key" : {
                        "email" : 1
                },
                "name" : "email_1",
                "unique" : true
        },
        {
                "v" : 2,
                "key" : {
                        "age" : 1
                },
                "name" : "age_1"
        }
]
> 
```

Composed Index



```
> db.employee.createIndex({"friends.name" : 1})
{
        "numIndexesBefore" : 4,
        "numIndexesAfter" : 5,
        "createdCollectionAutomatically" : false,
        "ok" : 1
}
> db.employee.getIndexes()
[
        {
                "v" : 2,
                "key" : {
                        "_id" : 1
                },
                "name" : "_id_"
        },
        {
                "v" : 2,
                "key" : {
                        "firstname" : 1
                },
                "name" : "firstname_1"
        },
        {
                "v" : 2,
                "key" : {
                        "email" : 1
                },
                "name" : "email_1",
                "unique" : true
        },
        {
                "v" : 2,
                "key" : {
                        "age" : 1
                },
                "name" : "age_1"
        },
        {
                "v" : 2,
                "key" : {
                        "friends.name" : 1
                },
                "name" : "friends.name_1"
        }
]
```