Мамонов Антон 3ИСиП-19-1

```
> use test
switched to db test
> db.users.insertOne( { name: "Tom"})
{
        "acknowledged" : true,
        "insertedId" : ObjectId("617c60e780baca6d926bd522")
}
> db.users.find()
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
```

Установка и администрирование базы данных

```
> show dbs
admin   0.000GB
config  0.000GB
local   0.000GB
test    0.000GB
> db
test
> show collections
users
```

Добавление данных

```
> db.users.insertOne({"name": "Tom", "age": 28, languages: ["english", "spanish"]})
{
        "acknowledged" : true,
        "insertedId" : ObjectId("617c64ec80baca6d926bd523")
}
> db.users.insertOne({"_id": 123457, "name": "Tom", "age": 28, languages: ["english", "spanish"]})
{ "acknowledged" : true, "insertedId" : 123457 }
> db.users.find()
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "english", "
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
> db.users.find().pretty()
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{
        "_id" : ObjectId("617c64ec80baca6d926bd523"),
        "name" : "Tom",
        "age" : 28,
        "languages" : [
                "english",
                "spanish"
        ]
}
{
        "_id" : 123457,
        "name" : "Tom",
        "age" : 28,
        "languages" : [
                "english",
                "spanish"
        ]
}
```

```
> db.users.insertMany([{"name": "Bob", "age": 26, languages: ["english", "french"]},
... {"name": "Alice", "age": 31, languages:["german", "english"]}])
{
        "acknowledged" : true,
        "insertedIds" : [
                ObjectId("617c656380baca6d926bd524"),
                ObjectId("617c656380baca6d926bd525")
        ]
}
```

```
> db.stats()
{
        "db" : "test",
        "collections" : 1,
        "views" : 0,
        "objects" : 1,
        "avgObjSize" : 36,
        "dataSize" : 36,
        "storageSize" : 20480,
        "freeStorageSize" : 0,
        "indexes" : 1,
        "indexSize" : 20480,
        "indexFreeStorageSize" : 0,
        "totalSize" : 40960,
        "totalFreeStorageSize" : 0,
        "scaleFactor" : 1,
        "fsUsedSize" : 209312485376,
        "fsTotalSize" : 255402356736,
        "ok" : 1
}
> db.users.stats()
{
        "ns" : "test.users",
        "size" : 36,
        "count" : 1,
        "avgObjSize" : 36,
        "storageSize" : 20480,
        "freeStorageSize" : 0,
        "capped" : false,
        "wiredTiger" : {
                "metadata" : {
                        "formatVersion" : 1
                },
                "creationString" : "access_pattern_hint=none,allocation_size
sion=1),assert=(commit_timestamp=none,durable_timestamp=none,read_timestamp=
ock_allocation=best,block_compressor=snappy,cache_resident=false,checksum=on
s=,dictionary=0,encryption=(keyid=,name=),exclusive=false,extractor=,format=
alue=,ignore_in_memory_cache_size=false,immutable=false,import=(enabled=fals
e),internal_item_max=0,internal_key_max=0,internal_key_truncate=true,interna
key_gap=10,leaf_item_max=0,leaf_key_max=0,leaf_page_max=32KB,leaf_value_max=
```

```
> document=({"name": "Bill", "age": 32, languages: ["english", "french"]})
{ "name" : "Bill", "age" : 32, "languages" : [ "english", "french" ] }
> db.users.insertOne(document)
{
        "acknowledged" : true,
        "insertedId" : ObjectId("617c660dcb8a25d9a1849455")
}
>
```

Всё сработало

```
> load("C:/users.js")
true
> db.users.find()
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "eng
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "languages" : [ "eng
french" ] }
{ "_id" : ObjectId("617c656380baca6d926bd525"), "name" : "Alice", "age" : 31, "languages" : [ "g
"english" ] }
{ "_id" : ObjectId("617c660dcb8a25d9a1849455"), "name" : "Bill", "age" : 32, "languages" : [ "en
"french" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849456"), "name" : "Alice", "age" : 31, "languages" : [ "e
 "french" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849457"), "name" : "Lene", "age" : 29, "languages" : [ "en
"spanish" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849458"), "name" : "Kate", "age" : 30, "languages" : [ "ge
russian" ] }
>
```

```
> db.users.findOne()
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
> db.users.findTwo()
uncaught exception: TypeError: db.users.findTwo is not a function :
@(shell):1:1
```

findTwo уже нет

```
> db.users.find({name: "Tom"})
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "english",
"spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
> _
> db.users.find({name: "Tom", age: 28})
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "english",
"spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
>
```

```
> db.users.find({languages: "english"})
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" :
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "languages" :
french" ] }
{ "_id" : ObjectId("617c656380baca6d926bd525"), "name" : "Alice", "age" : 31, "languages"
"english" ] }
{ "_id" : ObjectId("617c660dcb8a25d9a1849455"), "name" : "Bill", "age" : 32, "languages" :
"french" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849456"), "name" : "Alice", "age" : 31, "languages"
 "french" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849457"), "name" : "Lene", "age" : 29, "languages" :
"spanish" ] }
```

```
> db.users.find({languages: ["english", "german"]})
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [
german" ] }
```

Выборка из БД

```
> db.users.find().pretty()
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{
        "_id" : ObjectId("617c64ec80baca6d926bd523"),
        "name" : "Tom",
        "age" : 28,
        "languages" : [
                "english",
                "spanish"
        ]
}
{
        "_id" : 123457,
        "name" : "Tom",
        "age" : 28,
        "languages" : [
                "english",
                "spanish"
        ]
}
{
        "_id" : ObjectId("617c656380baca6d926bd524"),
        "name" : "Bob",
        "age" : 26,
        "languages" : [
                "english",
                "french"
        ]
}
{
        "_id" : ObjectId("617c656380baca6d926bd525"),
        "name" : "Alice",
        "age" : 31,
        "languages" : [
                "german",
                "english"
        ]
}
{
        "_id" : ObjectId("617c660dcb8a25d9a1849455"),
        "name" : "Bill",
        "age" : 32,
        "languages" : [
                "english",
                "french"
        ]
}
{
```

```
> db.users.find({languages: null})
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
> db.users.find({name: "Tom", languages: null})
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
>
```

```
> db.users.find({"languages.0": "english"})
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "lang
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "lang
french" ] }
{ "_id" : ObjectId("617c660dcb8a25d9a1849455"), "name" : "Bill", "age" : 32, "lan
"french" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849456"), "name" : "Alice", "age" : 31, "la
 "french" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849457"), "name" : "Lene", "age" : 29, "lan
"spanish" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "lang
spanish" ] }
{ "_id" : ObjectId("617c6855cb8a25d9a184945a"), "name" : "Bill", "age" : 32, "lan
"french" ] }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "lang
german" ] }
```

```
> db.users.find({name: "Tom"}, {age: 1})
{ "_id" : ObjectId("617c60e780baca6d926bd522") }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "age" : 28 }
{ "_id" : 123457, "age" : 28 }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "age" : 28 }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "age" : 32 }
>
```

```
> db.users.find({name: "Tom"}, {age: 0, name: 0})
{ "_id" : ObjectId("617c60e780baca6d926bd522") }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "languages" : [ "english", "spanish" ] }
{ "_id" : 123457, "languages" : [ "english", "spanish" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "languages" : [ "english", "spanish" ] }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "languages" : [ "english", "german" ] }
> db.users.find({name: "Tom"}, {age: 1, name: 1})
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28 }
{ "_id" : 123457, "name" : "Tom", "age" : 28 }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28 }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32 }
```

```
> db.users.find({name: "Tom"}, {age: true, _id: false})
{  }
{ "age" : 28 }
{ "age" : 28 }
{ "age" : 28 }
{ "age" : 32 }
```

```
> db.users.find({}, {age: 1, _id: 0})
{  }
{ "age" : 28 }
{ "age" : 28 }
{ "age" : 26 }
{ "age" : 31 }
{ "age" : 32 }
{ "age" : 31 }
{ "age" : 29 }
{ "age" : 30 }
{ "age" : 28 }
{ "age" : 32 }
{ "age" : 32 }
{ "age" : 18 }
```

```
> db.users.insertOne({"name": "Alex", "age": 28, company: {"name":"Microsoft", "country":"USA"}})
{
        "acknowledged" : true,
        "insertedId" : ObjectId("617c6a57cb8a25d9a184945d")
}
> db.users.find({"company.name": "Microsoft"})
{ "_id" : ObjectId("617c6a57cb8a25d9a184945d"), "name" : "Alex", "age" : 28, "company" : { "name" : "Mic
rosoft", "country" : "USA" } }
```

```
> fn = function() { return this.name=="Tom"; }
function() { return this.name=="Tom"; }
> db.users.find(fn)
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "engl
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages" : [ "engl
spanish" ] }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [ "engl
german" ] }
```

```
function sqrt(n) { return n*n; }
sqrt(5)
```

```
> db.users.find({name:/^B\w+/i})
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "languages" : [ "english
french" ] }
{ "_id" : ObjectId("617c660dcb8a25d9a1849455"), "name" : "Bill", "age" : 32, "languages" : [ "englis
"french" ] }
{ "_id" : ObjectId("617c6855cb8a25d9a184945a"), "name" : "Bill", "age" : 32, "languages" : [ "englis
"french" ] }
```

```
> db.users.find().limit(3)
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "english",
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
> db.users.find().skip(3)
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "languages" : [ "english",
french" ] }
{ "_id" : ObjectId("617c656380baca6d926bd525"), "name" : "Alice", "age" : 31, "languages" : [ "german",
"english" ] }
{ "_id" : ObjectId("617c660dcb8a25d9a1849455"), "name" : "Bill", "age" : 32, "languages" : [ "english",
"french" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849456"), "name" : "Alice", "age" : 31, "languages" : [ "english"
"french" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849457"), "name" : "Lene", "age" : 29, "languages" : [ "english",
"spanish" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849458"), "name" : "Kate", "age" : 30, "languages" : [ "german",
russian" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages" : [ "english",
spanish" ] }
{ "_id" : ObjectId("617c6855cb8a25d9a184945a"), "name" : "Bill", "age" : 32, "languages" : [ "english",
"french" ] }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [ "english",
german" ] }
{ "_id" : ObjectId("617c68cacb8a25d9a184945c"), "name" : "Denis", "age" : 18, "languages" : [ "german",
"english" ] }
{ "_id" : ObjectId("617c6a57cb8a25d9a184945d"), "name" : "Alex", "age" : 28, "company" : { "name" : "Mi
rosoft", "country" : "USA" } }
```

```
> db.users.find().sort({name: 1})
{ "_id" : ObjectId("617c6a57cb8a25d9a184945d"), "name" : "Alex", "age" : 28, "company" : { "na
rosoft", "country" : "USA" } }
{ "_id" : ObjectId("617c656380baca6d926bd525"), "name" : "Alice", "age" : 31, "languages" : [
"english" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849456"), "name" : "Alice", "age" : 31, "languages" : [
 "french" ] }
{ "_id" : ObjectId("617c660dcb8a25d9a1849455"), "name" : "Bill", "age" : 32, "languages" : [
"french" ] }
{ "_id" : ObjectId("617c6855cb8a25d9a184945a"), "name" : "Bill", "age" : 32, "languages" : [
"french" ] }
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "languages" : [ "
french" ] }
{ "_id" : ObjectId("617c68cacb8a25d9a184945c"), "name" : "Denis", "age" : 18, "languages" : [
"english" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849458"), "name" : "Kate", "age" : 30, "languages" : [
russian" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849457"), "name" : "Lene", "age" : 29, "languages" : [
"spanish" ] }
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages" : [ "
spanish" ] }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [ "
german" ] }
```

Сортировка по двум колонкам

```
> db.users.find().sort({name: 1, age: -1})
{ "_id" : ObjectId("617c6a57cb8a25d9a184945d"), "name" : "Alex", "age" : 28, "company" : { "name"
rosoft", "country" : "USA" } }
{ "_id" : ObjectId("617c656380baca6d926bd525"), "name" : "Alice", "age" : 31, "languages" : [ "ger
"english" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849456"), "name" : "Alice", "age" : 31, "languages" : [ "eng
 "french" ] }
{ "_id" : ObjectId("617c660dcb8a25d9a1849455"), "name" : "Bill", "age" : 32, "languages" : [ "engl
"french" ] }
{ "_id" : ObjectId("617c6855cb8a25d9a184945a"), "name" : "Bill", "age" : 32, "languages" : [ "engl
"french" ] }
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "languages" : [ "engli
french" ] }
{ "_id" : ObjectId("617c68cacb8a25d9a184945c"), "name" : "Denis", "age" : 18, "languages" : [ "ger
"english" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849458"), "name" : "Kate", "age" : 30, "languages" : [ "germ
russian" ] }
{ "_id" : ObjectId("617c66c2cb8a25d9a1849457"), "name" : "Lene", "age" : 29, "languages" : [ "engl
"spanish" ] }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [ "engli
german" ] }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "engli
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages" : [ "engli
spanish" ] }
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
```

```
> db.users.find().sort({name: 1}).skip(3).limit(3)
{ "_id" : ObjectId("617c6855cb8a25d9a184945a"), "name" : "Bill", "age" : 32, "languages" : [ "en
"french" ] }
{ "_id" : ObjectId("617c660dcb8a25d9a1849455"), "name" : "Bill", "age" : 32, "languages" : [ "en
"french" ] }
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "languages" : [ "eng
french" ] }
```

```
> db.users.find().sort({ $natural: -1 }).limit(5)
{ "_id" : ObjectId("617c6a57cb8a25d9a184945d"), "name" : "Alex", "age" : 28, "company" :
rosoft", "country" : "USA" } }
{ "_id" : ObjectId("617c68cacb8a25d9a184945c"), "name" : "Denis", "age" : 18, "languages
"english" ] }
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages"
german" ] }
{ "_id" : ObjectId("617c6855cb8a25d9a184945a"), "name" : "Bill", "age" : 32, "languages"
"french" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages"
spanish" ] }
> db.users.find().sort({ $natural: 1 }).limit(5)
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages"
spanish" ] }
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english", "spanish" ] }
{ "_id" : ObjectId("617c656380baca6d926bd524"), "name" : "Bob", "age" : 26, "languages"
french" ] }
{ "_id" : ObjectId("617c656380baca6d926bd525"), "name" : "Alice", "age" : 31, "languages
"english" ] }
```

```
> db.users.find ({name: "Tom"}, {languages: {$slice : 1}})
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "english" ]
}
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "english" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages" : [ "english" ]
}
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [ "english" ]
}
{ "_id" : ObjectId("617c6d22cb8a25d9a184945e"), "name" : "Tom", "age" : "32", "languages" : [ "english"
] }
> db.users.find ({name: "Tom"}, {languages: {$slice : -1}});
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "spanish" ]
}
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "spanish" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages" : [ "spanish" ]
}
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [ "german" ]
}
{ "_id" : ObjectId("617c6d22cb8a25d9a184945e"), "name" : "Tom", "age" : "32", "languages" : [ "german"
] }
> db.users.find ({name: "Tom"}, {languages: {$slice : [-1, 1]}});
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "spanish" ]
}
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "spanish" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages" : [ "spanish" ]
}
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [ "german" ]
}
{ "_id" : ObjectId("617c6d22cb8a25d9a184945e"), "name" : "Tom", "age" : "32", "languages" : [ "german"
] }
> db.users.find ({name: "Tom"}, {languages: {$slice : [-1, 2]}});
{ "_id" : ObjectId("617c60e780baca6d926bd522"), "name" : "Tom" }
{ "_id" : ObjectId("617c64ec80baca6d926bd523"), "name" : "Tom", "age" : 28, "languages" : [ "spanish" ]
}
{ "_id" : 123457, "name" : "Tom", "age" : 28, "languages" : [ "spanish" ] }
{ "_id" : ObjectId("617c6850cb8a25d9a1849459"), "name" : "Tom", "age" : 28, "languages" : [ "spanish" ]
}
{ "_id" : ObjectId("617c6859cb8a25d9a184945b"), "name" : "Tom", "age" : 32, "languages" : [ "german" ]
}
{ "_id" : ObjectId("617c6d22cb8a25d9a184945e"), "name" : "Tom", "age" : "32", "languages" : [ "german"
] }
```

```
> var cursor = db.users.find()
> while(cursor.hasNext()){
... obj = cursor.next();
... print(obj["name"]);
... }
Tom
Tom
Tom
Bob
Alice
Bill
Alice
Lene
Kate
Tom
Bill
Tom
Denis
Alex
Tom
```

```
> var cursor = db.users.find()
> cursor.forEach(function(obj){ print(obj.name); })
Tom
Tom
Tom
Bob
Alice
Bill
Alice
Lene
Kate
Tom
Bill
Tom
Denis
Alex
Tom
```

```
> var cursor = db.users.find()
> cursor.limit(5);null;
null
> cursor.forEach(function(obj){ print(obj.name); })
Tom
Tom
Tom
Bob
Alice
```

```
> var cursor = db.users.find()
> cursor.sort({name:1});null;
null
> cursor.forEach(function(obj){ print(obj.name); })
Alex
Alice
Alice
Bill
Bill
Bob
Denis
Kate
Lene
Tom
Tom
Tom
Tom
Tom
Tom
```

```
> var cursor = db.users.find()
> cursor.skip(2);null;
null
> cursor.forEach(function(obj){ print(obj.name); })
Tom
Bob
Alice
Bill
Alice
Lene
Kate
Tom
Bill
Tom
Denis
Alex
Tom
```

```
> var cursor = db.users.find()
> cursor.sort({name:1}).limit(3).skip(2);null;
null
> cursor.forEach(function(obj){ print(obj.name); })
Alice
Bill
Bill
```