



Licenciatura en Sistemas de la Información

Cátedra: Bases de Datos NoSQL

Profesores: Walter Bel

Alumno: Mateo Buris – Matías Núñez – Franco Valledor

TP 4 - Mongo

2021

1era Parte

1.

```
> db.help()
DB methods:
  db.adminCommand(nameOrDocument) - switches to 'admin' db, and runs command [just calls db.runCommand(...)]
  db.aggregate([pipeline], {options}) - performs a collectionless aggregation on this database; returns a cursor
  db.auth(username, password)
  db.createCollection(name, {size: ..., capped: ..., max: ...})
  db.createUser(userDocument)
  db.createView(name, viewOn, [{operator: {...}}, ...], {viewOptions})
  db.currentOp() displays currently executing operations in the db
  db.dropDatabase(writeConcern)
  db.dropUser(username)
  db.eval() - deprecated
  db.fsyncLock() flush data to disk and lock server for backups
  db.fsyncUnlock() unlocks server following a db.fsyncLock()
  db.getCollection(cname) same as db['cname'] or db.cname
  db.getCollectionInfos([filter]) - returns a list that contains the names and options of the db's collections
  db.getCollectionNames()
  db.getLastError() - just returns the err msg string
  db.getLastErrorObj() - return full status object
  db.getLogComponents()
  db.getMongo() get the server connection object
  db.getMongo().setSecondaryOk() allow queries on a replication secondary server
  db.getName()
  db.getProfilingLevel() - deprecated
  db.getProfilingStatus() - returns if profiling is on and slow threshold
  db.getReplicationInfo()
  db.getSiblingDB(name) get the db at the same server as this one
  db.getWriteConcern() - returns the write concern used for any operations on this db, inherited from server object if set
  db.hostInfo() get details about the server's host
  db.isMaster() check replica primary status
  db.hello() check replica primary status
  db.killOp(opid) kills the current operation in the db
  db.listCommands() lists all the db commands
  db.loadServerScripts() loads all the scripts in db.system.js
  db.logout()
  db.printCollectionStats()
  db.printReplicationInfo()
  db.printShardingStatus()
  db.printSecondaryReplicationInfo()
  db.resetError()
  db.runCommand(cmdObj) run a database command. if cmdObj is a string, turns it into {cmdObj: 1}
  db.serverStatus()
  db.setLogLevel(level,<component>)
  db.setProfilingLevel(level,slowms) 0=off 1=slow 2=all
  db.setVerboseShell(flag) display extra information in shell output
  db.setWriteConcern(<write concern doc>) - sets the write concern for writes to the db
  db.shutdownServer()
```

2.

```
> db.version()
4.4.6
```

3.

```
> db.stats()
{
  "db" : "test",
  "collections" : 0,
  "views" : 0,
  "objects" : 0,
  "avgObjSize" : 0,
  "dataSize" : 0,
  "storageSize" : 0,
  "totalSize" : 0,
  "indexes" : 0,
  "indexSize" : 0,
  "scaleFactor" : 1,
  "fileSize" : 0,
  "fsUsedSize" : 0,
  "fsTotalSize" : 0,
  "ok" : 1
}
> █
```

4.

```
> show dbs
admin    0.000GB
config  0.000GB
local    0.000GB
```

5.

```
> use db_prueba
switched to db db_prueba
> █
```

6.

```
> db.getCollectionNames()
[ ]
> █
```

7.

```
...
> db.lenguajes.insert({'nombre':'python', 'version':'3.8.2'})
WriteResult({ "nInserted" : 1 })
> █
```

8.

```
WriteResult({ "nInserted" : 1 })
> db.getCollectionNames()
[ "lenguajes" ]
> █
```

9.

```
> db.lenguajes.insert({'nombre':'java', 'extension':'.jar', 'simbolo':'taza de café'})
WriteResult({ "nInserted" : 1 })
> █
```

10.

```
> db.lenguajes.insert({'nombre':'python','version':'2.7.9','proyectos':13,'frameworks':['flask','django']})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'javascript', 'version':'4.5', 'extension':'.js', 'frameworks':['react','angular',
'vue.js','express.js']})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'pascal', 'version':'?', 'proyectos':'0'})
uncaught exception: SyntaxError: missing } after property list :
@(shell):1:70
> db.lenguajes.insert({'nombre':'pascal', 'version':'?', 'proyectos':'0'})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'HTML', 'version':'5'})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'C++', 'version':'3.4.6', 'simbolo':'C+', 'extension':['h','.cpp']})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'Android', 'version':'Lollipop', 'extension':'.apk'})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'Arduino', 'version':'1.8.7', 'extension':'.ino'})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'C'})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'Rubi', 'simbolo':'Rubi rojo'})
WriteResult({ "nInserted" : 1 })
> db.lenguajes.insert({'nombre':'GO', 'version':'1.10', 'anio':2009})
WriteResult({ "nInserted" : 1 })
```

11.

```
> db.getCollection('python')
db_prueba.python
> db_prueba.python
```

12.

```
> db.lenguajes.count()
12
```

13.

```
> db.lenguajes.find({})
{ "_id" : ObjectId("60defc663ca5566fcf4a704d"), "nombre" : "python", "version" : "3.8.2" }
{ "_id" : ObjectId("60defca53ca5566fcf4a704e"), "nombre" : "java", "extension" : ".jar", "simbolo" : "taza de caf  " }
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "nombre" : "python", "version" : "2.7.9", "proyectos" : 13, "frameworks" : [ "flask", "django" ] }
{ "_id" : ObjectId("60defddb3ca5566fcf4a7050"), "nombre" : "javascript", "version" : "4.5", "extension" : ".js", "frameworks" : [ "react", "angular", "vue.js", "express.js" ] }
{ "_id" : ObjectId("60defe723ca5566fcf4a7051"), "nombre" : "pascal", "version" : "?", "proyectos" : "0" }
{ "_id" : ObjectId("60defe8f3ca5566fcf4a7052"), "nombre" : "HTML", "version" : "5" }
{ "_id" : ObjectId("60defef73ca5566fcf4a7053"), "nombre" : "C++", "version" : "3.4.6", "simbolo" : "C+", "extension" : [ "h", ".cpp" ] }
{ "_id" : ObjectId("60deff3c3ca5566fcf4a7054"), "nombre" : "Android", "version" : "Lollipop", "extension" : ".apk" }
{ "_id" : ObjectId("60deff5a3ca5566fcf4a7055"), "nombre" : "Arduino", "version" : "1.8.7", "extension" : ".ino" }
{ "_id" : ObjectId("60df00293ca5566fcf4a7056"), "nombre" : "C" }
{ "_id" : ObjectId("60df004d3ca5566fcf4a7057"), "nombre" : "Rubi", "simbolo" : "Rubi rojo" }
{ "_id" : ObjectId("60df00e93ca5566fcf4a7058"), "nombre" : "GO", "version" : "1.10", "anio" : 2009 }
```

14.

```
> db.lenguajes.find({}).pretty()
{
  "_id" : ObjectId("60defc663ca5566fcf4a704d"),
  "nombre" : "python",
  "version" : "3.8.2"
}
{
  "_id" : ObjectId("60defca53ca5566fcf4a704e"),
  "nombre" : "java",
  "extension" : ".jar",
  "simbolo" : "taza de café"
}
{
  "_id" : ObjectId("60defd433ca5566fcf4a704f"),
  "nombre" : "python",
  "version" : "2.7.9",
  "proyectos" : 13,
  "frameworks" : [
    "flask",
    "django"
  ]
}
{
  "_id" : ObjectId("60defddb3ca5566fcf4a7050"),
  "nombre" : "javascript",
  "version" : "4.5",
  "extension" : ".js",
  "frameworks" : [
    "react",
    "angular",
    "vue.js",
    "express.js"
  ]
}
{
  "_id" : ObjectId("60defe723ca5566fcf4a7051"),
  "nombre" : "pascal",
  "version" : "?",
  "proyectos" : "0"
}
{
  "_id" : ObjectId("60defe8f3ca5566fcf4a7052"),
  "nombre" : "HTML",
  "version" : "5"
}
{
  "_id" : ObjectId("60defef73ca5566fcf4a7053"),
  "nombre" : "C++",
  "version" : "3.4.6",
```

16.

```
> db.lenguajes.find({'nombre':'python'})
{ "_id" : ObjectId("60defc663ca5566fcf4a704d"), "nombre" : "python", "version" : "3.8.2" }
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "nombre" : "python", "version" : "2.7.9", "proyectos" : 13, "frameworks" : [ "flask", "django" ] }
```

17.

```
> db.lenguajes.find({'nombre':'python'},{'version':'3.4.6'})
{ "_id" : ObjectId("60defc663ca5566fcf4a704d"), "version" : "3.4.6" }
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "version" : "3.4.6" }
```

18.

```
> db.lenguajes.find({'nombre':'python'},{'version':'3.4.6'})
{ "_id" : ObjectId("60defc663ca5566fcf4a704d"), "version" : "3.4.6" }
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "version" : "3.4.6" }
```

20.

```
> db.lenguajes.find( { version : {$exists:true} } )
{ "_id" : ObjectId("60defc663ca5566fcf4a704d"), "nombre" : "python", "version" : "3.8.2" }
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "nombre" : "python", "version" : "2.7.9", "proyectos" : 13, "frameworks" : [ "flask", "django" ] }
{ "_id" : ObjectId("60defddb3ca5566fcf4a7050"), "nombre" : "javascript", "version" : "4.5", "extension" : ".js", "frameworks" : [ "react", "angular", "vue.js", "express.js" ] }
{ "_id" : ObjectId("60defe723ca5566fcf4a7051"), "nombre" : "pascal", "version" : "?", "proyectos" : "0" }
{ "_id" : ObjectId("60defe8f3ca5566fcf4a7052"), "nombre" : "HTML", "version" : "5" }
{ "_id" : ObjectId("60defef73ca5566fcf4a7053"), "nombre" : "C++", "version" : "3.4.6", "simbolo" : "C+", "extension" : [ "h", ".cpp" ] }
{ "_id" : ObjectId("60defff3c3ca5566fcf4a7054"), "nombre" : "Android", "version" : "Lollipop", "extension" : ".apk" }
{ "_id" : ObjectId("60deff5a3ca5566fcf4a7055"), "nombre" : "Arduino", "version" : "1.8.7", "extension" : ".ino" }
{ "_id" : ObjectId("60df00e93ca5566fcf4a7058"), "nombre" : "GO", "version" : "1.10", "anio" : 2009 }
>
```

21.

```
> db.lenguajes.find( { version : {$exists:false} } )
{ "_id" : ObjectId("60defca53ca5566fcf4a704e"), "nombre" : "java", "extension" : ".jar", "simbolo" : "taza de café" }
{ "_id" : ObjectId("60df00293ca5566fcf4a7056"), "nombre" : "C" }
{ "_id" : ObjectId("60df004d3ca5566fcf4a7057"), "nombre" : "Rubi", "simbolo" : "Rubi rojo" }
>
```

22.

```
> db.lenguajes.find({proyectos : { $gt : 7 } })
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "nombre" : "python", "version" : "2.7.9", "proyectos" : 13, "frameworks" : [ "flask", "django" ] }
> db.lenguajes.find({proyectos : { $gt : 1 } })
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "nombre" : "python", "version" : "2.7.9", "proyectos" : 13, "frameworks" : [ "flask", "django" ] }
> db.lenguajes.find({frameworks : { $in : [ 'vue.js' ] } })
uncaught exception: SyntaxError: '' literal not terminated before end of script :
@(shell):1:53
> db.lenguajes.find({frameworks : { $in : [ 'vue.js' ] } })
uncaught exception: SyntaxError: '' literal not terminated before end of script :
@(shell):1:54
> db.lenguajes.find({frameworks : { $in : [ 'vue.js' ] } })
{ "_id" : ObjectId("60defddb3ca5566fcf4a7050"), "nombre" : "javascript", "version" : "4.5", "extension" : ".js", "frameworks" : [ "react", "angular", "vue.js", "express.js" ] }
> db.lenguajes.find({frameworks : { $in : [ 'angular' ] } })
{ "_id" : ObjectId("60defddb3ca5566fcf4a7050"), "nombre" : "javascript", "version" : "4.5", "extension" : ".js", "frameworks" : [ "react", "angular", "vue.js", "express.js" ] }
> db.lenguajes.find({frameworks : { $in : [ 'flask' ] } })
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "nombre" : "python", "version" : "2.7.9", "proyectos" : 13, "frameworks" : [ "flask", "django" ] }
>
```

23.

```
> db.lenguajes.find( { }, { nombre: 1 } )
{ "_id" : ObjectId("60defc663ca5566fcf4a704d"), "nombre" : "python" }
{ "_id" : ObjectId("60defca53ca5566fcf4a704e"), "nombre" : "java" }
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "nombre" : "python" }
{ "_id" : ObjectId("60defddb3ca5566fcf4a7050"), "nombre" : "javascript" }
{ "_id" : ObjectId("60defe723ca5566fcf4a7051"), "nombre" : "pascal" }
{ "_id" : ObjectId("60defe8f3ca5566fcf4a7052"), "nombre" : "HTML" }
{ "_id" : ObjectId("60defef73ca5566fcf4a7053"), "nombre" : "C++" }
{ "_id" : ObjectId("60deff3c3ca5566fcf4a7054"), "nombre" : "Android" }
{ "_id" : ObjectId("60deff5a3ca5566fcf4a7055"), "nombre" : "Arduino" }
{ "_id" : ObjectId("60df00293ca5566fcf4a7056"), "nombre" : "C" }
{ "_id" : ObjectId("60df004d3ca5566fcf4a7057"), "nombre" : "Rubi" }
{ "_id" : ObjectId("60df00e93ca5566fcf4a7058"), "nombre" : "GO" }
> db.lenguajes.find( { }, { nombre: 1, version : 2 } )
{ "_id" : ObjectId("60defc663ca5566fcf4a704d"), "nombre" : "python", "version" : "3.8.2" }
{ "_id" : ObjectId("60defca53ca5566fcf4a704e"), "nombre" : "java" }
{ "_id" : ObjectId("60defd433ca5566fcf4a704f"), "nombre" : "python", "version" : "2.7.9" }
{ "_id" : ObjectId("60defddb3ca5566fcf4a7050"), "nombre" : "javascript", "version" : "4.5" }
{ "_id" : ObjectId("60defe723ca5566fcf4a7051"), "nombre" : "pascal", "version" : "?" }
{ "_id" : ObjectId("60defe8f3ca5566fcf4a7052"), "nombre" : "HTML", "version" : "5" }
{ "_id" : ObjectId("60defef73ca5566fcf4a7053"), "nombre" : "C++", "version" : "3.4.6" }
{ "_id" : ObjectId("60deff3c3ca5566fcf4a7054"), "nombre" : "Android", "version" : "Lollipop" }
{ "_id" : ObjectId("60deff5a3ca5566fcf4a7055"), "nombre" : "Arduino", "version" : "1.8.7" }
{ "_id" : ObjectId("60df00293ca5566fcf4a7056"), "nombre" : "C" }
{ "_id" : ObjectId("60df004d3ca5566fcf4a7057"), "nombre" : "Rubi" }
{ "_id" : ObjectId("60df00e93ca5566fcf4a7058"), "nombre" : "GO", "version" : "1.10" }
>
```

24.

```
> db.lenguajes.find( { }, { _id : 0, nombre: 1, version : 2 } )
{ "nombre" : "python", "version" : "3.8.2" }
{ "nombre" : "java" }
{ "nombre" : "python", "version" : "2.7.9" }
{ "nombre" : "javascript", "version" : "4.5" }
{ "nombre" : "pascal", "version" : "?" }
{ "nombre" : "HTML", "version" : "5" }
{ "nombre" : "C++", "version" : "3.4.6" }
{ "nombre" : "Android", "version" : "Lollipop" }
{ "nombre" : "Arduino", "version" : "1.8.7" }
{ "nombre" : "C" }
{ "nombre" : "Rubi" }
{ "nombre" : "GO", "version" : "1.10" }
```

25.

```
> db.lenguajes.update( { nombre:'Arduino' }, { $set : {version : '1.8.9'} } )
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
>
```

26.

```
> db.lenguajes.update( { nombre:'Arduino' }, { $set : {proyecto : 7 } } )
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
```

27.

```
> db.lenguajes.update( { nombre:'Arduino' }, { $rename : { 'proyecto' : 'proyectos' } } )
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
>
```

28.


```
> db.lenguajes.find( { nombre: { $regex: 'u' } } )
{ "_id" : ObjectId("60deff5a3ca5566fcf4a7055"), "nombre" : "Arduino", "version" : "1.8.9", "extension" : ".ino", "proyectos" : 7 }
{ "_id" : ObjectId("60df004d3ca5566fcf4a7057"), "nombre" : "Rubi", "simbolo" : "Rubi rojo" }
>
```

29.

```
> db.lenguajes.find( { nombre: { $regex: '^A' } } )
{ "_id" : ObjectId("60deff3c3ca5566fcf4a7054"), "nombre" : "Android", "version" : "Lollipop", "extension" : ".apk" }
{ "_id" : ObjectId("60deff5a3ca5566fcf4a7055"), "nombre" : "Arduino", "version" : "1.8.9", "extension" : ".ino", "proyectos" : 7 }
>
```

30.

```
> db.lenguajes.find( { nombre: { $regex: 'd$' } } )
{ "_id" : ObjectId("60deff3c3ca5566fcf4a7054"), "nombre" : "Android", "version" : "Lollipop", "extension" : ".apk" }
>
```

31.

```
> db.lenguajes.update( { nombre:'Arduino' }, { $push : { 'frameworks' : 'nodejs' } } )
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
>
```

32.

```
> db.lenguajes.update( { nombre:'Arduino' }, { $pop : { 'frameworks' : -1 } } )
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 1 })
> db.lenguajes.update( { nombre:'Arduino' }, { $pop : { 'frameworks' : 1 } } )
WriteResult({ "nMatched" : 1, "nUpserted" : 0, "nModified" : 0 })
>
```

33.

```
> db.lenguajes.find( { }, { _id : 0, nombre : 1, version : 2 }).sort({nombre : 1})
{ "nombre" : "Android", "version" : "Lollipop" }
{ "nombre" : "Arduino", "version" : "1.8.9" }
{ "nombre" : "C" }
{ "nombre" : "C++", "version" : "3.4.6" }
{ "nombre" : "GO", "version" : "1.10" }
{ "nombre" : "HTML", "version" : "5" }
{ "nombre" : "Rubi" }
{ "nombre" : "java" }
{ "nombre" : "javascript", "version" : "4.5" }
{ "nombre" : "pascal", "version" : "?" }
{ "nombre" : "python", "version" : "3.8.2" }
{ "nombre" : "python", "version" : "2.7.9" }
```

34.


```
> db.lenguajes.find( { }, { _id : 0, nombre : 1 , version : 2 }).sort({nombre : -1} )
{ "nombre" : "python", "version" : "3.8.2" }
{ "nombre" : "python", "version" : "2.7.9" }
{ "nombre" : "pascal", "version" : "?" }
{ "nombre" : "javascript", "version" : "4.5" }
{ "nombre" : "java" }
{ "nombre" : "Rubi" }
{ "nombre" : "HTML", "version" : "5" }
{ "nombre" : "GO", "version" : "1.10" }
{ "nombre" : "C++", "version" : "3.4.6" }
{ "nombre" : "C" }
{ "nombre" : "Arduino", "version" : "1.8.9" }
{ "nombre" : "Android", "version" : "Lollipop" }
>
```

35.

```
> db.lenguajes.find( { },{ _id : 0, nombre : 1 , version : 2}).sort({nombre : 1, version : -1} )
{ "nombre" : "Android", "version" : "Lollipop" }
{ "nombre" : "Arduino", "version" : "1.8.9" }
{ "nombre" : "C" }
{ "nombre" : "C++", "version" : "3.4.6" }
{ "nombre" : "GO", "version" : "1.10" }
{ "nombre" : "HTML", "version" : "5" }
{ "nombre" : "Rubi" }
{ "nombre" : "java" }
{ "nombre" : "javascript", "version" : "4.5" }
{ "nombre" : "pascal", "version" : "?" }
{ "nombre" : "python", "version" : "3.8.2" }
{ "nombre" : "python", "version" : "2.7.9" }
>
```

2da Parte

6.

```

> db.personajes.count()
87

```

8.

```

> db.personajes.find({}, {name:1,birth_year:1,homeworld:1}).pretty()
{
  "_id" : ObjectId("60e0b4a976d4e9d2548085aa"),
  "name" : "C-3PO",
  "birth_year" : "112BBY",
  "homeworld" : "https://swapi.co/api/planets/1/"
}
{
  "_id" : ObjectId("60e0b4a976d4e9d2548085ab"),
  "name" : "Luke Skywalker",
  "birth_year" : "19BBY",
  "homeworld" : "https://swapi.co/api/planets/1/"
}
{
  "_id" : ObjectId("60e0b4a976d4e9d2548085ac"),
  "name" : "R2-D2",
  "birth_year" : "33BBY",
  "homeworld" : "https://swapi.co/api/planets/8/"
}
{
  "_id" : ObjectId("60e0b4a976d4e9d2548085ad"),

```

9.

```
> db.personajes.find({$or: [{name:'Darth Vader'}]}).pretty()
{
  "_id" : ObjectId("60e0b4a976d4e9d2548085ad"),
  "name" : "Darth Vader",
  "height" : "202",
  "mass" : "136",
  "hair_color" : "none",
  "skin_color" : "white",
  "eye_color" : "yellow",
  "birth_year" : "41.988Y",
  "gender" : "male",
  "homeworld" : "https://swapi.co/api/planets/1/",
  "films" : [
    "https://swapi.co/api/films/2/",
    "https://swapi.co/api/films/6/",
    "https://swapi.co/api/films/3/",
    "https://swapi.co/api/films/1/"
  ],
  "species" : [
    "https://swapi.co/api/species/1/"
  ],
  "vehicles" : [ ],
  "starships" : [
    "https://swapi.co/api/starships/13/"
  ],
  "created" : "2014-12-10T15:18:20.704000Z",
  "edited" : "2014-12-20T21:17:50.313000Z",
  "url" : "https://swapi.co/api/people/4/"
}
```

```
> db.personajes.find({$or: [{name:'Kylo Ren'}]}).pretty()
> 
```

11.

```
> db.personajes.find( { height: { $lt : 80 } }).pretty()
> 
```

17.

```
> db.personajes.find( { species:'https://swapi.co/api/species/2/' }).pretty()
{
  "_id" : ObjectId("60e0b4a976d4e9d2548085aa"),
  "name" : "C-3PO",
  "height" : "167",
  "mass" : "75",
  "hair_color" : "n/a",
  "skin_color" : "gold",
  "eye_color" : "yellow",
  "birth_year" : "112BBY",
  "gender" : "n/a",
  "homeworld" : "https://swapi.co/api/planets/1/",
  "films" : [
    "https://swapi.co/api/films/2/",
    "https://swapi.co/api/films/5/",
    "https://swapi.co/api/films/4/",
    "https://swapi.co/api/films/6/",
    "https://swapi.co/api/films/3/",
    "https://swapi.co/api/films/1/"
  ],
  "species" : [
    "https://swapi.co/api/species/2/"
  ],
  "vehicles" : [ ],
}
```

20.

```
> db.personajes.find({name: {$regex : '^P'}}).pretty()
{
  "_id" : ObjectId("60e0b4a976d4e9d2548085be"),
  "name" : "Palpatine",
  "height" : "170",
  "mass" : "75",
  "hair_color" : "grey",
  "skin_color" : "pale",
  "eye_color" : "yellow",
  "birth_year" : "82BBY",
  "gender" : "male",
  "homeworld" : "https://swapi.co/api/planets/8/",
  "films" : [
    "https://swapi.co/api/films/2/",
    "https://swapi.co/api/films/5/",
    "https://swapi.co/api/films/4/",
    "https://swapi.co/api/films/6/",
    "https://swapi.co/api/films/3/"
  ],
  "species" : [
    "https://swapi.co/api/species/1/"
  ]
}
```

```
> db.personajes.find({name: {$regex : '^F'}}).pretty()
{
  "_id" : ObjectId("60e0b4a976d4e9d2548085ca"),
  "name" : "Finis Valorum",
  "height" : "170",
  "mass" : "unknown",
  "hair_color" : "blond",
  "skin_color" : "fair",
  "eye_color" : "blue",
  "birth_year" : "91BBY",
  "gender" : "male",
  "homeworld" : "https://swapi.co/api/planets/9/",
  "films" : [
    "https://swapi.co/api/films/4/"
  ],
  "species" : [
    "https://swapi.co/api/species/1/"
  ],
  "vehicles" : [ ],
  "starships" : [ ],
}
```