Proiect ABD

Pentru inceput voi porni o instanta MongoDB (ADB\_proj\_mongo) ce va rula intr-un Docker Container

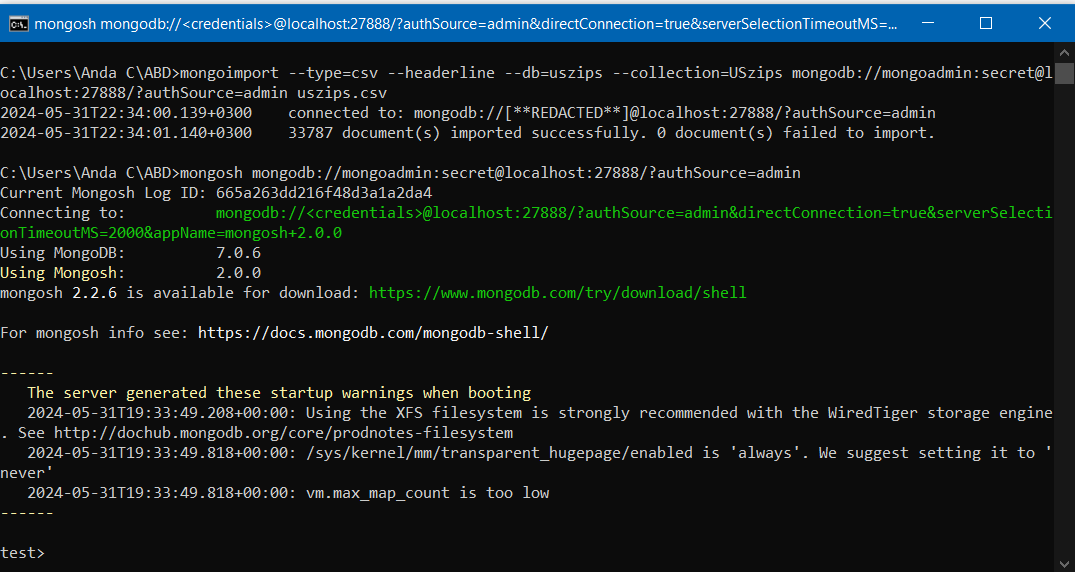
docker run -d --name ADB\_proj\_mongo -p 27888:27017 –e MONGO\_INITDB\_ROOT\_USERNAME=mongoadmin –e MONGO\_INITDB\_ROOT\_PASSWORD=secret mongo

Voi importa uszips.csv

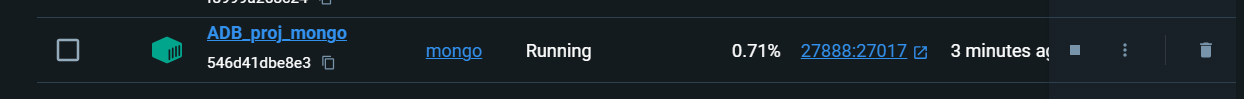
mongoimport --type=csv --headerline --db=uszips --collection=USzips mongodb://mongoadmin:secret@localhost:27888/?authSource=admin uszips.csv

Ma conectez la baza de date

mongosh mongodb://mongoadmin:secret@localhost:27888/?authSource=admin







1. Statele cu populatia mai mare de 10 milioane

db.USzips.aggregate([

{

$group : {

\_id : '$state\_name',

totalPop: {$sum: "$population" }

}

},

{

$sort: {totalPop: 1}

},

{

$match: {

totalPop: { $gt: 10000000}

}

},

{

$project: {

state: "$\_id",

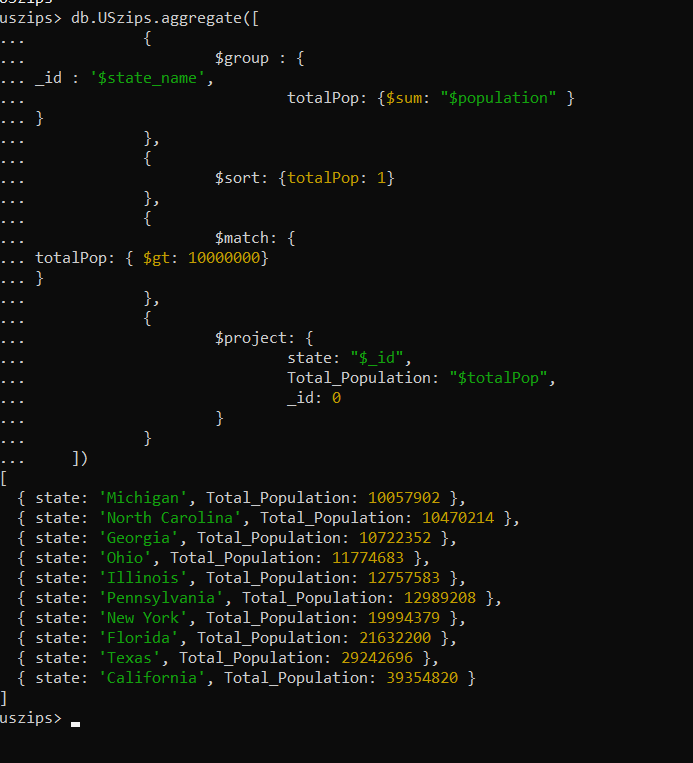
Total\_Population: "$totalPop",

\_id: 0

}

}

])



1. Media populatiei fiecarui stat

db.USzips.aggregate([

{

$group: {

\_id: { state: "$state\_name", city: "$city" },

cityPop: { $sum: "$population" }

}

},

{

$group: {

\_id: "$\_id.state",

averageCityPopulation: { $avg: "$cityPop" }

}

},

{

$sort: { averageCityPopulation: 1}

},

{

$project: {

state: "$\_id",

averageCityPopulation: 1,

\_id: 0

}

}

])



1. Cel mai mic si cel mai mare oras din fiecare stat

Dupa populatie:

db.USzips.aggregate([

{

$group: {

\_id: { state: "$state\_name", city: "$city" },

cityPop: { $sum: "$population" }

}

},

{

$sort: { cityPop: 1 }

},

{

$group: {

\_id: "$\_id.state",

largestCity: { $last: "$\_id.city" },

largestCityPopulation: { $last: "$cityPop" },

smallestCity: { $first: "$\_id.city" },

smallestCityPopulation: { $first: "$cityPop" }

}

},

{

$project: {

state: "$\_id",

smallestCity: { city: "$smallestCity", population: "$smallestCityPopulation" },

largestCity: { city: "$largestCity", population: "$largestCityPopulation" },

\_id: 0

}

}

])



1. Cel mai mic si cel mai mare regiune (county) din fiecare stat

Dupa populatie:

db.USzips.aggregate([

{

$group: {

\_id: { state: "$state\_name", county: "$county\_name" },

countyPop: { $sum: "$population" }

}

},

{

$sort: { "countyPop": 1 }

},

{

$group: {

\_id: "$\_id.state",

largestCounty: { $last: "$\_id.county" },

largestCountyPopulation: { $last: "$countyPop" },

smallestCounty: { $first: "$\_id.county" },

smallestCountyPopulation: { $first: "$countyPop" }

}

},

{

$project: {

state: "$\_id",

largestCounty: { county: "$largestCounty", population: "$smallestCountyPopulation" },

smallestCounty: { county: "$smallestCounty", population: "$smallestCountyPopulation" },

\_id: 0

}

}

])



1. Cele mai apropiate 10 zip-uri de la unul dintre reperele din Chicago, Turnul Willis (aici m-am ajutat putin de ChatGPT pentru a intelege cum adauga un nou camp in colectie)

db.USzips.aggregate([

{

$project: {

zip: 1,

city: 1,

lat: 1,

lng: 1,

state\_name: 1,

geolocation: {

type: "Point",

coordinates: ["$lng","$lat"]

}

}

},

{

$merge: {

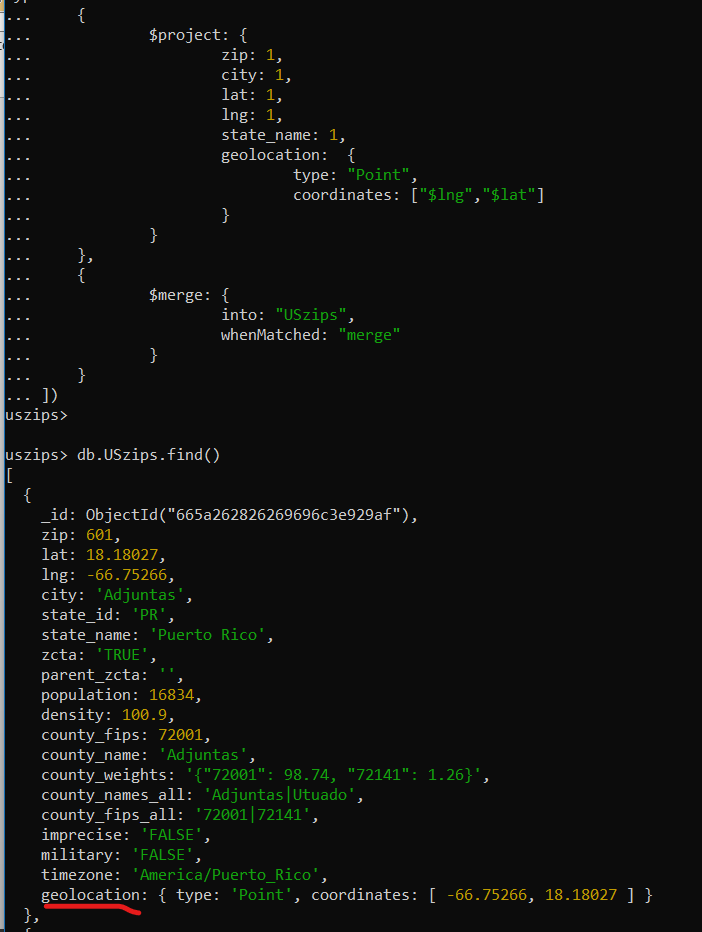
into: "USzips",

whenMatched: "merge"

}

}

])



db.USzips.createIndex({ geolocation: "2dsphere" })



db.USzips.find({

geolocation: {

$near: {

$geometry: { type: "Point", coordinates: [-87.635918, 41.878876] }

}

}

}).limit(10)











