# MongoDB -Aggregation Exercises

Import the zips.json file into your MongoDB. Database name is "population" and collection name is "zipcodes".

mongoimport --db population --collection zipcodes --file zips.json

# Atlanta Population

1. use db.zipcodes.find() to filter results to only the results where city is ATLANTA and state is GA.

db.zipcodes.find({city:”ATLANTA”,state:”GA”})

1. use db.zipcodes.aggregate with $match to do the same as above.

db.zipcodes.aggregate([{$match:{$and:[{city:”ATLANTA”},{state:”GA”}]}}])

1. use $group to count the number of zip codes in Atlanta.

db.zipcodes.aggregate([{$match:{city:”ATLANTA”}},{$group:{\_id:”$loc”}},{$count:”number of zip codes”}])

1. use $group to find the total population in Atlanta.

db.zipcodes.aggregate([{$match:{city:”ATLANTA”}},{$group:{\_id:”$city”,”total population in Atlanta”:{$sum:”$pop”}}}])

# Populations By State

1. use aggregate to calculate the total population for each state

db.zipcodes.aggregate([{$group:{\_id:”$state”,”Total population”:{$sum:”$pop”}}}])

1. sort the results by population, highest first

db.zipcodes.aggregate([{$group:{\_id:”$state”,”Total population”:{$sum:”$pop”}}},{$sort:{“Total population”:-1}}])

1. limit the results to just the first 3 results. What are the top 3 states in population?

db.zipcodes.aggregate([{$group:{\_id:”$state”,”Total population”:{$sum:”$pop”}}},{$sort:{“Total population”:-1}},{$limit:3}])

# Populations by City

1. use aggregate to calculate the total population for each city (you have to use city/state combination). You can use a combination for the \_id of the $group: { city: '$city', state: '$state' }

db.zipcodes.aggregate([{$group:{\_id:{city:”$city”,state:”$state”},”Total population”:{$sum:”$pop”}}}])

1. sort the results by population, highest first

db.zipcodes.aggregate([{$group:{\_id:{city:”$city”,state:”$state”,”Total population”:{$sum:”$pop”}}},{$sort:{”Total population”:-1}}])

1. limit the results to just the first 3 results. What are the top 3 cities in population?

db.zipcodes.aggregate([{$group:{\_id:{city:”$city”,state:”$state”,”Total population”:{$sum:”$pop”}}},{$sort:{”Total population”:-1}},{$limit:3}])

1. What are the top 3 cities in population in Texas?

db.zipcodes.aggregate([{$match:{city:”Texas”}},{$group:{\_id:”$city”,”total population in Atlanta”:{$sum:”$pop”}}},{$sort:{”Total population”:-1}},{$limit:3}])

# Bonus

1. Write a query to get the average city population for each state.

db.zipcodes.aggregate([{$group:{\_id:”$state”,”Total population”:{$avg:”$pop”}}}])

1. What are the top 3 states in terms of average city population?

db.zipcodes.aggregate([{$group:{\_id:”$state”,”Total population”:{$avg:”$pop”}}},{$sort:{”Total population”:-1}},{$limit:3}])