# 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([**

**{$and: [{city:”ATLANTA”,state:”GA”}]}**

**])**

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

**db.zipcodes.aggregate([**

**{$match:{city:”ATLANTA”,state:”GA”}}**

**])**

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

**db.zipcodes.aggregate([**

**{$group : {\_id: {city: “ATLANTA”}, count: {$sum: 1}}}**

**])**

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

# Populations By State

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

**db.zipcodes.aggregate([**

**{$group:{\_id:{state:'$state'},population:{$sum:'$pop'}}},{$sort:{population: -1}}**

**])**

1. sort the results by population, highest first

**db.zipcodes.aggregate([**

**{$group:{\_id: {city: '$city', state: '$state'},population: {$sum: '$pop'}}}**

**])**

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

**db.zipcodes.aggregate([**

**{$group:{\_id:{state:'$state'},population:{$sum:'$pop'}}},{$sort:{population: -1}},{$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: '$state'},population: {$sum: '$pop'}}}**

**])**

1. sort the results by population, highest first

**db.zipcodes.aggregate([**

**{$group:{\_id:{city:'$city',state:'$state'},population:{$sum:'$pop'}}},{$sort:{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:'$state'},population:{$sum:'$pop'}}},{$sort:{population: -1}},{$limit:3}**

**])**

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

**db.zipcodes.aggregate([**

**{$group:{\_id:{city:”Texas”},population:{$sum:'$pop'}}},{$sort:{population: -1}},{$limit:3}**

**])**

# Bonus

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

**db.zipcodes.aggregate( [**

**{ $group: { \_id: { state: "$state", city: "$city" }, pop: { $sum: "$pop" } } },**

**{ $group: { \_id: "$\_id.state", avgCityPop: { $avg: "$pop" } } }**

**] )**

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

**db.zipcodes.aggregate( [**

**{ $group: { \_id: { state: "$state", city: "$city" }, pop: { $sum: "$pop" } } },**

**{ $group: { \_id: "$\_id.state", avgCityPop: { $avg: "$pop" } } },limit(3)**

**] )**