# 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.
2. use db.zipcodes.aggregate with $match to do the same as above.
3. use $group to count the number of zip codes in Atlanta.
4. use $group to find the total population in Atlanta.

1….db.zipcodes.find({city:"ATLANTA"})

2……db.zipcodes.aggregate([{

$match:{city:"ATLANTA"}}])

3……..db.zipcodes.aggregate([

{

$match:{city:'ATLANTA'}},

{

$group:{\_id:{zipcodes:"$\_id",city:"$city"},total:{$sum:1}}},

{$group:{\_id:"$\_id.city",count:{$sum:"$total"}}

}])

4………..db.zipcodes.aggregate([

{

$match:{city:'ATLANTA'}},

{

$group:{\_id:{zipcodes:"$\_id",city:"$city"},total:{$sum:"$pop"}}},

{$group:{\_id:"$\_id.city",count:{$sum:"$total"}}

}])

# Populations By State

1. use aggregate to calculate the total population for each state
2. sort the results by population, highest first
3. limit the results to just the first 3 results. What are the top 3 states in population?

1…………..db.zipcodes.aggregate([

{

$group:{\_id:{state:"$state"},total:{$sum:'$pop'}}}])

2………………db.zipcodes.aggregate([

{

$group:{\_id:{state:"$state"},total:{$sum:'$pop'}}},{$sort:{total:-1}}])

3…………………db.zipcodes.aggregate([

{$group:{\_id:{state:"$state"},total:{$sum:'$pop'}}},

{$sort:{total:-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' }
2. sort the results by population, highest first
3. limit the results to just the first 3 results. What are the top 3 cities in population?
4. What are the top 3 cities in population in Texas?

1……………..db.zipcodes.aggregate([

{

$group:{\_id:{city:"$city",state1:"$state"},total:{$sum:"$pop"}}},

{$group:{\_id:{city:"$\_id.city",state:"$\_id.state1"},totalpop:{$sum:"$total"}}}])

2……………….db.zipcodes.aggregate([

{

$group:{\_id:{city:"$city",state1:"$state"},total:{$sum:"$pop"}}},

{$group:{\_id:{city:"$\_id.city",state:"$\_id.state1"},totalpop:{$sum:"$total"}}},

{$sort:{totalpop:-1}}])

3…………….db.zipcodes.aggregate([

{

$group:{\_id:{city:"$city",state1:"$state"},total:{$sum:"$pop"}}},

{$group:{\_id:{city:"$\_id.city",state:"$\_id.state1"},totalpop:{$sum:"$total"}}},

{$sort:{totalpop:-1}},

{$limit:3}])

4……………..db.zipcodes.aggregate([

{$match:{state:"TX"}},

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

{$sort:{total:-1}},

{$limit:3}])

# Bonus

1. Write a query to get the average city population for each state.
2. What are the top 3 states in terms of average city population?

1……………….db.zipcodes.aggregate([

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

{$group:{\_id:{state:"$\_id.state"},avg:{$avg:"$total"}}}])

2…………….db.zipcodes.aggregate([

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

{$group:{\_id:{state:"$\_id.state"},avg:{$avg:"$total"}}},

{$sort:{avg:-1}},

{$limit:3}])