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.

Ans: db.zipcodes.find({ $and: [{city : “ATLANTA”}, {state: “GA”}]})

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

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

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

Ans: db.zipcodes.aggregate([{ $group: { \_id: "$city" } }, { $count: "ATLANTA" }])

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

Ans: db.zipcodes.aggregate([{$group: {\_id: “$city”, totalpop: {$sum:”$pop”}}}, {$match:{\_id:”ATLANTA”}}])

Populations By State

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

Ans: db.zipcodes.aggregate( {$group: { \_id :{state: "$state"}, totalpop :{$sum: "$pop"}}})

2. sort the results by population, highest first

Ans: db.zipcodes.aggregate( [{$group: { \_id :'$state'}, totalpop :{$sum: '$pop'}}}, {$sort: {totalpop: -1}}])

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

Ans: db.zipcodes.aggregate( [ {$group: { \_id : '$state'}}, totalpop :{$sum: '$pop'}, {$sort: {totalpop: -1},{$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' }

Ans: db.zipcodes.aggregate( {$group: { \_id : {city: “$city”, state: "$state"}, population:{$sum: "$pop"}}})

2. sort the results by population, highest first

Ans: db.zipcodes.aggregate( {$group: { \_id : {city: “$city”, state: '$state'}, population:{$sum: '$pop'}}}, {$sort: {pop: -1}})

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

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

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

Ans: : db.zipcodes.aggregate([ {$group: { \_id : {city: “$city, state: '$Texas'}}, pop:{$sum: '$pop'}, {$sort: {pop: -1},{$limit:3}}}])

Bonus

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

Ans: db.zipcodes.aggregate([ { $group: { \_id: {state:"$state",city: "$city"}, pop:{$sum: "$pop"}}}, { $group:{\_id: “$\_id.state”, avgcitypop:{$avg:"$pop"}}}])

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

Ans: db.zipcodes.aggregate([ {$limit: 3}, { $group: { \_id: {state:"$state",city: "$city"}, pop:{$sum: "$pop"}}}, { $group:{\_id: “$\_id.state”, avgcitypop: {$avg:"$pop"}}},{$sort:{avgcitypop: -1}},{$limit: 3}])