**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({$match: {$and: [{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.

db.zipcodes.aggregate([{$group: {\_id: {'city': 'ATLANTA'}, TotalPopulation:{$sum: "$pop"}}}])

**Populations By State**

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

db.zipcodes.aggregate([{$group: {\_id: {'state': "$state"}, TotalPopulation:{$sum: "$pop"}}}])

1. sort the results by population, highest first

population> db.zipcodes.aggregate([{$group: {\_id: {'state': "$state"}, TotalPopulation:{$sum: "$pop"}}},{$sort: {TotalPopulation: -1}}])

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

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

1. sort the results by population, highest first

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

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

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

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

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

**Bonus**

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

db.zipcodes.aggregate([{$group: {\_id: {state: "TX", city: "$city"}, AveragePopulation:{$avg: "$pop"}}},{$sort: {AveragePopulation: -1}}])

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

db.zipcodes.aggregate([{$group: {\_id: {state: "TX", city: "$city"}, AveragePopulation:{$avg: "$pop"}}},{$sort: {AveragePopulation: -1}},{$limit: 3}])