**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"})**

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

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

3. 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 in Atlanta"}])**

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

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

**Populations By State**

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

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

1. sort the results by population, highest first

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

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

**db.zipcodes.aggregate([{$group:{\_id:{state:"$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

**population> db.zipcodes.aggregate([{$group: {\_id:{city:"$city",state:"$state"},"population1":{$sum:"$pop"}}},{$sort:{"population1":-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:"$state"},"population1":{$sum:"$pop"}}},{$sort:{"population1":-1}},{$limit:3}])**

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

**db.zipcodes.aggregate([{$match:{state:"TX"}},{$group: {\_id:{city:"$city",state:"$state"},"population1":{$sum:"$pop"}}},{$sort:{"population1":-1}},{$limit:3}])**

**Bonus**

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

**db.zipcodes.aggregate([{$group:{\_id:{state:"$state"},"AvgPopulation":{$avg:"$pop"}}}])**

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

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