**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({$group:{\_id:{city:"$city"},TotalPopulation:{$sum:"$pop"}}})

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

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

1. **sort the results by population, highest first**

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

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

->db.zipcodes.aggregate({$group:{\_id:{city:"TEXAS",state:"$state"},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({$group:{\_id:{city:"$city",state:"$state"},AveragePopulation:{$avg:"$pop"}}})

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

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