# 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

**->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({$group:{\_id:{city:"$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})**