# 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"}]})

1. **Use db.zipcodes.aggregate with $match to do the same as above.**

**Ans:**

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

1. **Use $group to count the number of zip codes in Atlanta.**

**Ans:**

db.zipcodes.aggregate([ { $match: { city: "ATLANTA" } }, { $group: { \_id: "$city", count: { $sum: 1 } } }])

1. **use $group to find the total population in Atlanta.**

**Ans:**

db.zipcodes.aggregate([{$match: {city:"ATLANTA"}},{$group:{\_id:"$city"

,total\_population: {$sum:"$pop"}}}])

# Populations By State

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

**Ans:**

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

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

**Ans:**

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

**Ans:**

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

**Ans:**

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

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

**Ans:**

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?**

**Ans**:

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?**

**Ans:**

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

# Bonus

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

**Ans:**

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

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

**Ans:**

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