# 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: {city: 'ATLANTA',state:'GA'}} ] )**

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

**Ans:- db.zipcodes.aggregate([{$group : {\_id: {city: ‘ATLANTA’}, count: {$sum:1}}}])**

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

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

# Populations By State

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

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

1. sort the results by population, highest first

**Ans:- 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?

**Ans:- 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' }

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

1. sort the results by population, highest first

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

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

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

# Bonus

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

**Ans:- db.zipcodes.aggregate([ { $group: { \_id: { state: "$state", city: "$city" }, pop: { $sum: "$pop" } } }, { $group: { \_id: "$\_id.state", avgCityPop:**

**{ $avg: "$pop" } } }])**

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

**Ans:- db.zipcodes.aggregate([ { $group: { \_id: { state: "$state", city: "$city" }, pop: { $sum: "$pop" } } }, { $group: { \_id: "$\_id.state", avgCityPop:**

**{ $avg: "$pop" } } }, { $limit: 3 } ])**