**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:{city:"ATLANTA",state:"GA"}}])

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

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

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

**db.zipcodes.aggregate([{$group:{\_id:”ATLANTA”,totalpopulation:{$sum:{$add:”pop”}}}}])**

**Populations By State**

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

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

1. sort the results by population, highest first

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

**Populations by City**

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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

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

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

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

**Bonus**

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

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

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

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