**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({city:'ATLANTA',state:'GA'})

2. use db.zipcodes.aggregate with $match to do the same as above.

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

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

db.zipcodes.aggregate([{$match:{city:'ATLANTA'}},{$group:{\_id:'$\_id'}},{$count:'uni\_zipcode'}])

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

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

**Populations By State**

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

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

2. sort the results by population, highest first

db.zipcodes.aggregate([{$group:{\_id:'$state',totalpop:{$sum:'$pop'}}},{$sort:{totalpop:-1}}])

3. limit the results to just the first 3 results. What are the top 3 states in population?

db.zipcodes.aggregate([{$group:{\_id:'$state',totalpop:{$sum:'$pop'}}},{$sort:{totalpop:-1}},{$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: '$state' } ,totalpop:{$sum:'$pop'}}}])

2. sort the results by population, highest first

db.zipcodes.aggregate([{$group:{\_id: { city: '$city', state: '$state' } ,totalpop:{$sum:'$pop'}}},{$sort:{totalpop:-1}}])

3. 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: '$state' } ,totalpop:{$sum:'$pop'}}},{$sort:{totalpop:-1}},{$limit:3}])

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

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

**Bonus**

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

db.zipcodes.aggregate([{$group:{\_id:{state:'$state',city:'$city'},Avgpop:{$avg:'$pop'}}}])

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

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