**MongoDB -Aggregation Exercises**

**Atlanta Population**

1. use db.zipcodes.find() to filter results to only the results where city is ATLANTA and state is GA.

Query: db.zipcodes.find({city:"ATLANTA",state:"GA"})

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

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

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

Query: db.zipcodes.aggregate([{$group:{ \_id:"$loc"}}, {$count:"total\_zipcodes"}])

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

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

**Populations By State**

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

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

2. sort the results by population, highest first

Query : db.zipcodes.aggregate([{$group:{\_id:"$state",total\_pop:{$sum:"$pop"}}}, {$sort:{"total\_pop": -1}}]).pretty()

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

Query : db.zipcodes.aggregate([{$group:{\_id:"$state",total\_pop:{$sum:"$pop"}}}, {$sort:{"total\_pop": -1}},{$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' }

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

2. sort the results by population, highest first

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

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

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

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

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

**Bonus**

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

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

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

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