**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.

db.zipcode.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([{$group:{\_id:{state:”$state”}},{$count:”AT}}}])

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

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

**Populations By State**

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

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

2. sort the results by population, highest first

>db.zipcodes.aggregate([{$group:{\_id:”$state”,totalpopulation:{$sum:”$pop”}}},{$project:{totalpopulation:1}},{$sort:{totalpopulation:-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”,totalpopulation:{$sum:”$pop”}}},{$project:{totalpopulation:1}},{$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' }

>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:”$pop”}}},{$project:{totalpop:”$totalpo”}},{$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:”$pop”}}},{$project:{totalpop:”$totalpo”}},{$sort:{totalpop:-1}},{$limit:3}])

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

>db.zipcodes.aggregate([{$group:{\_id:{city:”$city”,state:”Texas”},totalpop:{$sum:”$pop”}}},{$project:{totalpop:”$totalpo”}},{$sort:{totalpop:-1}},{$limit:3}])

**Bonus**

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

>db.zipcodes.aggregate([{$group:{\_id:{city:”$city”,state:”$state”},pop:{$sum:”$pop”}}},{$group:{\_id:”$\_id.state” abgCityPop:,{$avg:”$pop”}}}])

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

>db.zipcodes.aggregate([{$group:{\_id:{city:”$city”,state:”$state”},pop:{$sum:”$pop”}}},{$group:{\_id:”$\_id.state” abgCityPop:,{$avg:”$pop”}}},{$project:{avgCityPop:”$avgCityPop}},{$sort:{avgCityPop:-1}},{$limit:3}])