**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.zipcodes.find({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",count:{$sum:1}}} ])

Output : [ { \_id: 'ATLANTA', count: 41 } ]

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

db.zipcodes.aggregate([ {$match:{city:"ATLANTA"}},

{$group:{\_id:"$city",total:{$sum:"$pop"}}} ])

Output : [ { \_id: 'ATLANTA', total: 630046 } ]

**Populations By State**

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

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

1. sort the results by population, highest first

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

{$sort:{totpop:-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",totpop:{$sum:"$pop"}}},

{$sort:{totpop:-1}},

{$limit:3} ])

Output: { \_id: 'CA', totpop: 29754890 }

{ \_id: 'NY', totpop: 17990402 }

{ \_id: 'TX', totpop: 16984601 }

**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:"$state"}, total:{$sum:"$pop"}} })

1. sort the results by population, highest first

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

{$sort:{total:-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:"$state"},total:{$sum:"$pop"}}},

{$sort:{total:-1}} )

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**

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

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

{$sort:{Average:-1}} ])

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

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

{$sort:{Average:-1}},

{$limit:3}])