**Assignment 2**

**Atlanta Population**

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

Ans)

db.zipcodes.find({

$and:[{city:"ATLANTA"},{state:"GA"}]

})

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

db.zipcodes.aggregate([

{$match:{$and:[{city:"ATLANTA"},{state:"GA"}]}}

])

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

db.zipcodes.aggregate([

{$group:{\_id:"$\_id"}},{$count:"total"}

])

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

db.zipcodes.aggregate([

{$group:{\_id:null ,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"}}},

{$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"}}},

{$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"}, totalPopulation: { $sum: "$pop"}}},

])

2. sort the results by population, highest first

db.zipcodes.aggregate([

{$group:{\_id:{city:"$city",state:"$state"}, totalPopulation: { $sum: "$pop"}}},

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

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

{$limit:3}

])

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

db.zipcodes.aggregate([

{$match:{state:"TX"}},

{$group:{\_id:{city:"$city",state:"$state"}, totalPopulation: { $sum: "$pop"}}},

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

{$limit:3}

])

**Bonus**

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

db.zipcodes.aggregate([

{$group:{\_id:"$state", AvgPopulation: { $avg: "$pop"}}},

])

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

db.zipcodes.aggregate([

{$group:{\_id:"$state", AvgPopulation: { $avg: "$pop"}}},

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

{$limit:3}])