**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’ },

{$group: {\_id: 1, count: {$sum: 1}}}

])

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

db.zipcodes.aggregate([

{$match: {city: ‘Atlanta’}},

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

])

**Populations By State**

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

db.zipcodes.aggregate([

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

])

1. sort the results by population, highest first

db.zipcodes.aggregate([

{$sort: {"\_id.pop": -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", total: {$sum: "$pop"}}}

{$sort: { total :-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: '$state' }}, total: {$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}},

{$limit: 3}

])

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

db.zipcodes.aggregate([

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

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

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

{$limit: 3}

])

**Bonus**

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

db.zipcodes.aggregate([

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

])

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

db.zipcodes.aggregate([

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

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

{$limit: 3}

])