**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.

Ans:- **db.zipcodes.find({$and:[{"city":"ATLANTA"},{"state":"GA"}]});**

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

Ans: **db.zipcodes.aggregate([{$match:{$and:[{city:"ATLANTA"},{state:"GA"}]}}]);**

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

Ans **db.zipcodes.aggregate([{$match:{city:"ATLANTA"}},{$group:{\_id:"$city",zip:{$sum:1}}}]);**

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

Ans:- **db.zipcodes.aggregate([{$match:{city:"ATLANTA"}},{$group:{\_id:"$city",population:{$sum:"$pop"}}}]);**

**Populations By State**

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

Ans:- **:-** **db.zipcodes.aggregate([{$group:{ \_id:"$state",population:{$sum:"$pop"}}}]);**

2. sort the results by population, highest first

Ans**:- db.zipcodes.aggregate([{$group:{ \_id:"$state",population:{$sum:"$pop"}}},{$sort:{population:-1}}]);**

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

Ans**:- db.zipcodes.aggregate([{$group:{ \_id:"$state",population:{$sum:"$pop"}}},{$sort:{population:-1}},{$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' }

Ans:- **db.zipcodes.aggregate([{$group:{\_id:{city:"$city",state:"$state"},population:{$sum:"$pop"}}}]);**

2. sort the results by population, highest first

Ans:- **db.zipcodes.aggregate([{$group:{\_id:{city:"$city",state:"$state"},population:{$sum:"$pop"}}},{$sort:{population:-1}}]);**

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

Ans:- **db.zipcodes.aggregate([{$group:{\_id:{city:"$city",state:"$state"},population:{$sum:"$pop"}}},{$sort:{population:-1}},{$limit:3}]);**

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

Ans:- There is no city or state named as Texas in the json file but if the query is to solved it will be: **db.zipcodes.aggregate([{$match:{state:”TEXAS”}},{$group:{\_id:{city:"$city",state:"$state"},population:{$sum:"$pop"}}},{$sort:{population:-1}},{$limit:3}]);**

**Bonus**

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

Ans**:- db.zipcodes.aggregate( [{ $group: { \_id: { state: "$state", city: "$city" }, population: { $sum: "$pop" } } }, { $group: { \_id: "$\_id.state", avgCityPop: { $avg: "$population" } } }] );**

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

Ans**:- db.zipcodes.aggregate( [{ $group: { \_id: { state: "$state", city: "$city" }, population: { $sum: "$pop" } } }, { $group: { \_id: "$\_id.state", avgCityPop: { $avg: "$population" } } },{$sort:{avgCityPop:-1}},{$limit:3}] );**

Submitted by- Shatakshi Mishra.