

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: {city: 'ATLANTA',state:'GA'}}])`

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

Ans:- `db.zipcodes.aggregate([{$group : { _id: {city: 'ATLANTA'}, count: {$sum:1}}}])`

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

Ans:- `db.zipcodes.aggregate([{$group : { _id: {city: 'ATLANTA'}, count: {$sum:"$pop"}}}])`

Populations By State

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

Ans:- `db.zipcodes.aggregate([{ $group: { _id: { state: '$state' }, population: { $sum: '$pop' } } }])`

2. sort the results by population, highest first

Ans:- `db.zipcodes.aggregate([{ $group: { _id: { state: '$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([{ $group: { _id: { state: '$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' }, 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' }, population : { $sum: '$pop' } } }, { $sort: { population: -1 } }, { $limit : 3 }])`

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

Ans:- `db.zipcodes.aggregate([{ $match: { state: 'TX' } }, { $group: { _id: { city: '$city' }, 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" }, pop: { $sum: "$pop" } } }, { $group: { _id: "$_id.state", avgCityPop: { $avg: "$pop" } } }])`

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

Ans:- `db.zipcodes.aggregate([{ $group: { _id: { state: "$state", city: "$city" }, pop: { $sum: "$pop" } } }, { $group: { _id: "$_id.state", avgCityPop: { $avg: "$pop" } } }, { $limit: 3 }])`