

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([{\$match:{city:"ATLANTA"}},{\$group:{_id:{_id:"\$_id"}},{\$count:"Count of zipcodes"}]})

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",Statepopulation:{$sum:"$pop"}}}])`

2. sort the results by population, highest first

Ans.

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

```
Atlas atlas-ryzdvs-shard-0 [primary] population> db.zipcodes.aggregate([{$group:{_id:"$state",Statepopulation:{$sum:"$pop"}},{ $sort:{Statepopulation:-1}},{$limit:3}])
[
  { _id: 'CA', Statepopulation: 29754890 },
  { _id: 'NY', Statepopulation: 17990402 },
  { _id: 'TX', Statepopulation: 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' }

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}])
```

```
Atlas atlas-ryzdvs-shard-0 [primary] population> db.zipcodes.aggregate([{$group:{_id:{city:"$city",state:"$state"},population:{$sum:"$pop"}},{ $sort:{population:-1}},{ $limit:3}])
[
  { _id: { city: 'CHICAGO', state: 'IL' }, population: 2452177 },
  { _id: { city: 'BROOKLYN', state: 'NY' }, population: 2300504 },
  { _id: { city: 'LOS ANGELES', state: 'CA' }, population: 2102295 }
]
```

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

Ans.

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

```
Atlas atlas-ryzdvs-shard-0 [primary] population> db.zipcodes.aggregate([{$match:{state:"TX"}},{ $group:{_id:{city:"$city",state:"$state"},population:{$sum:"$pop"}},{ $sort:{population:-1}},{ $limit:3}])
[
  { _id: { city: 'HOUSTON', state: 'TX' }, population: 2095918 },
  { _id: { city: 'DALLAS', state: 'TX' }, population: 940191 },
  { _id: { city: 'SAN ANTONIO', state: 'TX' }, population: 811792 }
]
```

Bonus

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

Ans. `db.zipcodes.aggregate([{$group: {_id: "$city", AvgPopulation: {$avg: "$pop"}}}])`

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

Ans.

`db.zipcodes.aggregate([{$group: {_id: "$city", AvgPopulation: {$avg: "$pop"}}}, {$sort: {AvgPopulation: -1}}, {$limit: 3}])`

```
Atlas atlas-ryzdvs-shard-0 [primary] population> db.zipcodes.aggregate([{$group: {_id: "$city", AvgPopulation: {$avg: "$pop"}
}}, {$sort: {AvgPopulation: -1}}, {$limit: 3}])
[
  { _id: 'BELL GARDENS', AvgPopulation: 99568 },
  { _id: 'ARLETA', AvgPopulation: 88114 },
  { _id: 'SOUTH GATE', AvgPopulation: 87026 }
]
```