

MongoDB- Aggregation Exercises

Atlanta Population

```
C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.find({$and:[{city:"ATLANTA"},{state:"GA"}]}).pretty()
{
  "_id" : "30303",
  "city" : "ATLANTA",
  "loc" : [
    -84.388846,
    33.752504
  ],
  "pop" : 1845,
  "state" : "GA"
}
{
  "_id" : "30305",
  "city" : "ATLANTA",
  "loc" : [
    -84.385145,
    33.831963
  ],
  "pop" : 19122,
  "state" : "GA"
}
{
  "_id" : "30306",
  "city" : "ATLANTA",
  "loc" : [
    -84.351418,
    33.786027
  ],
  "pop" : 20081,
  "state" : "GA"
}
{
  "_id" : "30307",
  "city" : "ATLANTA",
  "loc" : [
    -84.335957,
    33.769138
  ],
  "pop" : 16330,
  "state" : "GA"
}
{
  "_id" : "30308",
  "city" : "ATLANTA",
```

```

C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([{$match: {$and: [{city:"ATLANTA"},{state:"GA"}]}}])
{ "_id" : "30303", "city" : "ATLANTA", "loc" : [ -84.388846, 33.752504 ], "pop" : 1845, "state" : "GA" }
{ "_id" : "30305", "city" : "ATLANTA", "loc" : [ -84.385145, 33.831963 ], "pop" : 19122, "state" : "GA" }
{ "_id" : "30306", "city" : "ATLANTA", "loc" : [ -84.351418, 33.786027 ], "pop" : 20081, "state" : "GA" }
{ "_id" : "30307", "city" : "ATLANTA", "loc" : [ -84.335957, 33.769138 ], "pop" : 16330, "state" : "GA" }
{ "_id" : "30308", "city" : "ATLANTA", "loc" : [ -84.375744, 33.771839 ], "pop" : 8549, "state" : "GA" }
{ "_id" : "30309", "city" : "ATLANTA", "loc" : [ -84.388338, 33.798407 ], "pop" : 14766, "state" : "GA" }
{ "_id" : "30310", "city" : "ATLANTA", "loc" : [ -84.423173, 33.727849 ], "pop" : 34017, "state" : "GA" }
{ "_id" : "30311", "city" : "ATLANTA", "loc" : [ -84.470219, 33.722957 ], "pop" : 34880, "state" : "GA" }
{ "_id" : "30312", "city" : "ATLANTA", "loc" : [ -84.378125, 33.746749 ], "pop" : 17683, "state" : "GA" }
{ "_id" : "30313", "city" : "ATLANTA", "loc" : [ -84.39352, 33.76825 ], "pop" : 8038, "state" : "GA" }
{ "_id" : "30314", "city" : "ATLANTA", "loc" : [ -84.425546, 33.756103 ], "pop" : 26649, "state" : "GA" }
{ "_id" : "30315", "city" : "ATLANTA", "loc" : [ -84.380771, 33.705062 ], "pop" : 41061, "state" : "GA" }
{ "_id" : "30316", "city" : "ATLANTA", "loc" : [ -84.333913, 33.721686 ], "pop" : 34668, "state" : "GA" }
{ "_id" : "30317", "city" : "ATLANTA", "loc" : [ -84.31685, 33.749788 ], "pop" : 16395, "state" : "GA" }
{ "_id" : "30318", "city" : "ATLANTA", "loc" : [ -84.445432, 33.786454 ], "pop" : 53894, "state" : "GA" }
{ "_id" : "30319", "city" : "ATLANTA", "loc" : [ -84.335091, 33.868728 ], "pop" : 32138, "state" : "GA" }
{ "_id" : "30324", "city" : "ATLANTA", "loc" : [ -84.354867, 33.820609 ], "pop" : 15044, "state" : "GA" }
{ "_id" : "30326", "city" : "ATLANTA", "loc" : [ -84.358232, 33.848168 ], "pop" : 125, "state" : "GA" }
{ "_id" : "30327", "city" : "ATLANTA", "loc" : [ -84.419966, 33.862723 ], "pop" : 18467, "state" : "GA" }
{ "_id" : "30329", "city" : "ATLANTA", "loc" : [ -84.321402, 33.823555 ], "pop" : 17013, "state" : "GA" }
Type "it" for more

```

```

C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([{$match:{city:"ATLANTA"}},{ $group: { _id : "$_id" }},{ $count:"zipcode" }])
{ "_id" : "ATLANTA", "zipcode" : 41 }

```

```

C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([{$match:{city:"ATLANTA"}}, {$group:{_id:{city:"$city"}, pop:{$sum:"$pop"}}}])
{ "_id" : { "city" : "ATLANTA" }, "pop" : 630046 }

```

Population by State

```
C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([
... {$group: {_id: "$state", TotalPop: {$sum: "$pop"}}}
... ])
{ "_id" : "CO", "TotalPop" : 3293755 }
{ "_id" : "VA", "TotalPop" : 6181479 }
{ "_id" : "IA", "TotalPop" : 2776420 }
{ "_id" : "SD", "TotalPop" : 695397 }
{ "_id" : "NM", "TotalPop" : 1515069 }
{ "_id" : "MS", "TotalPop" : 2573216 }
{ "_id" : "WV", "TotalPop" : 1793146 }
{ "_id" : "TX", "TotalPop" : 16984601 }
{ "_id" : "MA", "TotalPop" : 6016425 }
{ "_id" : "TN", "TotalPop" : 4876457 }
{ "_id" : "DE", "TotalPop" : 666168 }
{ "_id" : "ID", "TotalPop" : 1006749 }
{ "_id" : "OR", "TotalPop" : 2842321 }
{ "_id" : "VT", "TotalPop" : 562758 }
{ "_id" : "MN", "TotalPop" : 4372982 }
{ "_id" : "NH", "TotalPop" : 1109252 }
{ "_id" : "PA", "TotalPop" : 11881643 }
{ "_id" : "WI", "TotalPop" : 4891769 }
{ "_id" : "FL", "TotalPop" : 12686644 }
{ "_id" : "RI", "TotalPop" : 1003218 }
```

```
C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([ {$group: {_id: "$state", TotalPop: {$sum: "$pop"}}}, {
$sort:{TotalPop:-1}} ])
{ "_id" : "CA", "TotalPop" : 29754890 }
{ "_id" : "NY", "TotalPop" : 17990402 }
{ "_id" : "TX", "TotalPop" : 16984601 }
{ "_id" : "FL", "TotalPop" : 12686644 }
{ "_id" : "PA", "TotalPop" : 11881643 }
{ "_id" : "IL", "TotalPop" : 11427576 }
{ "_id" : "OH", "TotalPop" : 10846517 }
{ "_id" : "MI", "TotalPop" : 9295297 }
{ "_id" : "NJ", "TotalPop" : 7730188 }
{ "_id" : "NC", "TotalPop" : 6628637 }
{ "_id" : "GA", "TotalPop" : 6478216 }
{ "_id" : "VA", "TotalPop" : 6181479 }
{ "_id" : "MA", "TotalPop" : 6016425 }
{ "_id" : "IN", "TotalPop" : 5544136 }
{ "_id" : "MO", "TotalPop" : 5110648 }
{ "_id" : "WI", "TotalPop" : 4891769 }
{ "_id" : "TN", "TotalPop" : 4876457 }
{ "_id" : "WA", "TotalPop" : 4866692 }
{ "_id" : "MD", "TotalPop" : 4781379 }
{ "_id" : "MN", "TotalPop" : 4372982 }
```

```
C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([ {$group: {_id: "$state", TotalPop: {$sum: "$pop"}}}, {
$sort:{TotalPop:-1}},{$limit:3} ])
{ "_id" : "CA", "TotalPop" : 29754890 }
{ "_id" : "NY", "TotalPop" : 17990402 }
{ "_id" : "TX", "TotalPop" : 16984601 }
```

Populations by City

```
C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([ { $group: { _id: { city: "$city", state: "$state" }, pop: { $sum: "$pop" } } }])
{ "_id" : { "city" : "SELAH", "state" : "WA" }, "pop" : 12507 }
{ "_id" : { "city" : "HIGHLAND CENTER", "state" : "IA" }, "pop" : 29462 }
{ "_id" : { "city" : "SALLADASBURG", "state" : "PA" }, "pop" : 11484 }
{ "_id" : { "city" : "ROBBINSVILLE", "state" : "NC" }, "pop" : 6879 }
{ "_id" : { "city" : "NORTH FALMOUTH", "state" : "MA" }, "pop" : 2651 }
{ "_id" : { "city" : "SPRING VALLEY", "state" : "MN" }, "pop" : 4506 }
{ "_id" : { "city" : "LONGFORD", "state" : "KS" }, "pop" : 507 }
{ "_id" : { "city" : "MC CALLA", "state" : "AL" }, "pop" : 8147 }
{ "_id" : { "city" : "AMELIA ISLAND", "state" : "FL" }, "pop" : 19016 }
{ "_id" : { "city" : "PERU", "state" : "KS" }, "pop" : 689 }
{ "_id" : { "city" : "CLIFTON", "state" : "NJ" }, "pop" : 71467 }
{ "_id" : { "city" : "VIRGILINA", "state" : "VA" }, "pop" : 2435 }
{ "_id" : { "city" : "BLOOMER", "state" : "WI" }, "pop" : 6410 }
{ "_id" : { "city" : "NEW HARTFORD", "state" : "NY" }, "pop" : 14035 }
{ "_id" : { "city" : "MOUNT CLARE", "state" : "WV" }, "pop" : 1558 }
{ "_id" : { "city" : "WESTPHALIA", "state" : "MI" }, "pop" : 2099 }
{ "_id" : { "city" : "KINGS MOUNTAIN", "state" : "NC" }, "pop" : 21012 }
{ "_id" : { "city" : "LANE", "state" : "OK" }, "pop" : 1001 }
{ "_id" : { "city" : "TRIANGLE", "state" : "VA" }, "pop" : 5181 }
{ "_id" : { "city" : "SANTA ANNA", "state" : "TX" }, "pop" : 1835 }
```

```
C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([ { $group: { _id: { city: "$city", state: "$state" }, pop: { $sum: "$pop" } } }, { $sort: { pop: -1 } } ] )
{ "_id" : { "city" : "CHICAGO", "state" : "IL" }, "pop" : 2452177 }
{ "_id" : { "city" : "BROOKLYN", "state" : "NY" }, "pop" : 2300504 }
{ "_id" : { "city" : "LOS ANGELES", "state" : "CA" }, "pop" : 2102295 }
{ "_id" : { "city" : "HOUSTON", "state" : "TX" }, "pop" : 2095918 }
{ "_id" : { "city" : "PHILADELPHIA", "state" : "PA" }, "pop" : 1610956 }
{ "_id" : { "city" : "NEW YORK", "state" : "NY" }, "pop" : 1476790 }
{ "_id" : { "city" : "BRONX", "state" : "NY" }, "pop" : 1209548 }
{ "_id" : { "city" : "SAN DIEGO", "state" : "CA" }, "pop" : 1049298 }
{ "_id" : { "city" : "DETROIT", "state" : "MI" }, "pop" : 963243 }
{ "_id" : { "city" : "DALLAS", "state" : "TX" }, "pop" : 940191 }
{ "_id" : { "city" : "PHOENIX", "state" : "AZ" }, "pop" : 890853 }
{ "_id" : { "city" : "MIAMI", "state" : "FL" }, "pop" : 825232 }
{ "_id" : { "city" : "SAN JOSE", "state" : "CA" }, "pop" : 816653 }
{ "_id" : { "city" : "SAN ANTONIO", "state" : "TX" }, "pop" : 811792 }
{ "_id" : { "city" : "BALTIMORE", "state" : "MD" }, "pop" : 733081 }
{ "_id" : { "city" : "SAN FRANCISCO", "state" : "CA" }, "pop" : 723993 }
{ "_id" : { "city" : "MEMPHIS", "state" : "TN" }, "pop" : 632837 }
{ "_id" : { "city" : "SACRAMENTO", "state" : "CA" }, "pop" : 628279 }
{ "_id" : { "city" : "JACKSONVILLE", "state" : "FL" }, "pop" : 610160 }
{ "_id" : { "city" : "ATLANTA", "state" : "GA" }, "pop" : 609591 }
```

```
C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([ { $group: { _id: { city: "$city", state: "$state" }, pop: { $sum: "$pop" } } }, { $sort: { pop: -1 } }, { $limit: 3 } ] )
{ "_id" : { "city" : "CHICAGO", "state" : "IL" }, "pop" : 2452177 }
{ "_id" : { "city" : "BROOKLYN", "state" : "NY" }, "pop" : 2300504 }
{ "_id" : { "city" : "LOS ANGELES", "state" : "CA" }, "pop" : 2102295 }
```

Bonus

```
C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([ { $group: { _id: { city: "$city", state: "$state" }, Avgpop: { $avg: "$pop" } } } ] )
{ "_id" : { "city" : "DE LEON", "state" : "TX" }, "Avgpop" : 4401 }
{ "_id" : { "city" : "SODA SPRINGS", "state" : "ID" }, "Avgpop" : 3871 }
{ "_id" : { "city" : "VICTOR", "state" : "ID" }, "Avgpop" : 1084 }
{ "_id" : { "city" : "BEAVERTOWN", "state" : "PA" }, "Avgpop" : 2226 }
{ "_id" : { "city" : "VALOIS", "state" : "NY" }, "Avgpop" : 547 }
{ "_id" : { "city" : "MOUNT JEWETT", "state" : "PA" }, "Avgpop" : 1039 }
{ "_id" : { "city" : "HARRISVILLE", "state" : "PA" }, "Avgpop" : 3617 }
{ "_id" : { "city" : "PRIMOS SECANE", "state" : "PA" }, "Avgpop" : 23885 }
{ "_id" : { "city" : "POINT HARBOR", "state" : "NC" }, "Avgpop" : 65 }
{ "_id" : { "city" : "BONE CAVE", "state" : "TN" }, "Avgpop" : 3954 }
{ "_id" : { "city" : "CENTERVILLE", "state" : "OH" }, "Avgpop" : 21065.5 }
{ "_id" : { "city" : "WILKINSON", "state" : "IN" }, "Avgpop" : 2567 }
{ "_id" : { "city" : "WALNUT", "state" : "IA" }, "Avgpop" : 1293 }
{ "_id" : { "city" : "IUKA", "state" : "IL" }, "Avgpop" : 965 }
{ "_id" : { "city" : "WHITMAN", "state" : "NE" }, "Avgpop" : 188 }
{ "_id" : { "city" : "LOGANSPOUT", "state" : "LA" }, "Avgpop" : 4130 }
{ "_id" : { "city" : "APPLEBY", "state" : "TX" }, "Avgpop" : 45332 }
{ "_id" : { "city" : "ENCINO", "state" : "CA" }, "Avgpop" : 19071.5 }
{ "_id" : { "city" : "CAMDEN", "state" : "NC" }, "Avgpop" : 2439 }
{ "_id" : { "city" : "CHUNCHULA", "state" : "AL" }, "Avgpop" : 1322 }
Type "it" for more

C:\Windows\System32\cmd.exe - mongo
> db.zipcodes.aggregate([ { $group: { _id: { state: "$state", city: "$city" }, Avgpop: { $avg: "$pop" } } }, { $sort: { Avgpop: -1 } }, { $limit : 3 } ] )
{ "_id" : { "state" : "CA", "city" : "BELL GARDENS" }, "Avgpop" : 99568 }
{ "_id" : { "state" : "CA", "city" : "NORWALK" }, "Avgpop" : 94188 }
{ "_id" : { "state" : "CA", "city" : "ARLETA" }, "Avgpop" : 88114 }
```