

ASSIGNMENT2:

MongoDB -Aggregation Exercises

```
Windows PowerShell
To enable free monitoring, run the following command: db.enableFreeMonitoring()
To permanently disable this reminder, run the following command: db.disableFreeMonitoring()

--
> use population
switched to db population
> dp.createCollection('zipcodes')
uncaught exception: ReferenceError: dp is not defined :
@shell):1:1
> db.createCollection('zipcodes')
{ "ok" : 1 }
> show dbs
admin            0.000GB
comments         0.000GB
config           0.000GB
local            0.000GB
mongo_practice   0.000GB
population       0.000GB
posts            0.000GB
test             0.000GB
> use population
switched to db population
> show collections
zipcodes
> db.zipcodes.find()
{ "_id" : "01001", "city" : "AGAWAM", "loc" : [ -72.622739, 42.070206 ], "pop" : 15338, "state" : "MA" }
{ "_id" : "01002", "city" : "CUSHMAM", "loc" : [ -72.51565, 42.377017 ], "pop" : 36963, "state" : "MA" }
{ "_id" : "01005", "city" : "BARRE", "loc" : [ -72.108354, 42.409698 ], "pop" : 4546, "state" : "MA" }
{ "_id" : "01008", "city" : "BELCHERTOWN", "loc" : [ -72.410953, 42.275103 ], "pop" : 10579, "state" : "MA" }
{ "_id" : "01009", "city" : "BLANDFORD", "loc" : [ -72.936114, 42.183249 ], "pop" : 1240, "state" : "MA" }
{ "_id" : "01010", "city" : "BRIMFIELD", "loc" : [ -72.188455, 42.116543 ], "pop" : 3706, "state" : "MA" }
{ "_id" : "01011", "city" : "CHESTER", "loc" : [ -72.988761, 42.279421 ], "pop" : 1688, "state" : "MA" }
{ "_id" : "01012", "city" : "CHESTERFIELD", "loc" : [ -72.833309, 42.38167 ], "pop" : 177, "state" : "MA" }
{ "_id" : "01013", "city" : "CHICOREE", "loc" : [ -72.607962, 42.162046 ], "pop" : 23366, "state" : "MA" }
{ "_id" : "01020", "city" : "CHICOREE", "loc" : [ -72.576142, 42.176443 ], "pop" : 33495, "state" : "MA" }
{ "_id" : "01022", "city" : "WESTOVER AFB", "loc" : [ -72.558657, 42.196672 ], "pop" : 1764, "state" : "MA" }
{ "_id" : "01026", "city" : "CUMMINGTON", "loc" : [ -72.905767, 42.435296 ], "pop" : 1484, "state" : "MA" }
{ "_id" : "01027", "city" : "MOUNT TOWN", "loc" : [ -72.679921, 42.264319 ], "pop" : 16864, "state" : "MA" }
{ "_id" : "01028", "city" : "EAST LONGMEADOW", "loc" : [ -72.595665, 42.067283 ], "pop" : 13367, "state" : "MA" }
{ "_id" : "01030", "city" : "FEEDING HILLS", "loc" : [ -72.675877, 42.07182 ], "pop" : 11085, "state" : "MA" }
{ "_id" : "01031", "city" : "GILBERTVILLE", "loc" : [ -72.198585, 42.332194 ], "pop" : 2385, "state" : "MA" }
{ "_id" : "01032", "city" : "GOSHEN", "loc" : [ -72.844092, 42.466234 ], "pop" : 122, "state" : "MA" }
{ "_id" : "01033", "city" : "GRANBY", "loc" : [ -72.520001, 42.255704 ], "pop" : 5526, "state" : "MA" }
{ "_id" : "01034", "city" : "TOLLAND", "loc" : [ -72.908793, 42.078234 ], "pop" : 1652, "state" : "MA" }
{ "_id" : "01035", "city" : "HADLEY", "loc" : [ -72.571499, 42.36062 ], "pop" : 4231, "state" : "MA" }
Type "it" for more
> db.zipcodes.find($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
```

Atlanta Population:

1. use db.zipcodes.find() to filter results to only the results where city is ATLANTA and state is GA.

```
Type "it" for more
> db.zipcodes.find($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
```

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

```
@shell):1:1
> 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
```

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

```
{ "_id" : "01034", "city" : "TOLLAND", "loc" : [ -72.908793, 42.070234 ], "pop" : 1652, "state" : "MA" }
{ "_id" : "01035", "city" : "HADLEY", "loc" : [ -72.571499, 42.36062 ], "pop" : 4231, "state" : "MA" }
Type "it" for more
> db.zipcodes.aggregate({$match:{city:"ATLANTA"}}
... }, {$group:{_id:"$city",
... zipcodes:$sum:1}})
{ "_id" : "ATLANTA", "zipcodes" : 41 }
>
```

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

```
{ "_id" : "ATLANTA", "zipcodes" : 41 }
> db.zipcodes.aggregate([{$group: {_id: "$ATLANTA", count: {$sum: "$pop"}}}])
{ "_id" : null, "count" : 248408400 }
>
```

Populations By State

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

```
> db.zipcodes.aggregate({$group:{_id:{state:'$state'},pop:{sum:'$pop'}}})
{ "_id" : { "state" : "IL" }, "pop" : 11427576 }
{ "_id" : { "state" : "KS" }, "pop" : 2475285 }
{ "_id" : { "state" : "MT" }, "pop" : 798948 }
{ "_id" : { "state" : "NE" }, "pop" : 1226648 }
{ "_id" : { "state" : "IN" }, "pop" : 5544136 }
{ "_id" : { "state" : "NV" }, "pop" : 17990402 }
{ "_id" : { "state" : "CT" }, "pop" : 3287116 }
{ "_id" : { "state" : "WI" }, "pop" : 4891769 }
{ "_id" : { "state" : "NE" }, "pop" : 1578139 }
{ "_id" : { "state" : "ND" }, "pop" : 4781379 }
{ "_id" : { "state" : "GA" }, "pop" : 6478216 }
{ "_id" : { "state" : "AL" }, "pop" : 4040587 }
{ "_id" : { "state" : "AR" }, "pop" : 2350725 }
{ "_id" : { "state" : "UT" }, "pop" : 1722850 }
{ "_id" : { "state" : "HI" }, "pop" : 1108229 }
{ "_id" : { "state" : "RI" }, "pop" : 1003218 }
{ "_id" : { "state" : "CO" }, "pop" : 3293755 }
{ "_id" : { "state" : "MO" }, "pop" : 5110648 }
{ "_id" : { "state" : "AZ" }, "pop" : 3665228 }
{ "_id" : { "state" : "WA" }, "pop" : 4866692 }
Type "it" for more
```

2. sort the results by population, highest first

```
Type "it" for more
> db.zipcodes.aggregate({$group:{_id:{state:'$state'},pop:{sum:'$pop'}}},{sort:{population:-1}})
{ "_id" : { "state" : "IL" }, "pop" : 11427576 }
{ "_id" : { "state" : "KS" }, "pop" : 2475285 }
{ "_id" : { "state" : "MT" }, "pop" : 798948 }
{ "_id" : { "state" : "NE" }, "pop" : 1226648 }
{ "_id" : { "state" : "IN" }, "pop" : 5544136 }
{ "_id" : { "state" : "NV" }, "pop" : 17990402 }
{ "_id" : { "state" : "CT" }, "pop" : 3287116 }
{ "_id" : { "state" : "WI" }, "pop" : 4891769 }
{ "_id" : { "state" : "NE" }, "pop" : 1578139 }
{ "_id" : { "state" : "ND" }, "pop" : 4781379 }
{ "_id" : { "state" : "GA" }, "pop" : 6478216 }
{ "_id" : { "state" : "AL" }, "pop" : 4040587 }
{ "_id" : { "state" : "AR" }, "pop" : 2350725 }
{ "_id" : { "state" : "UT" }, "pop" : 1722850 }
{ "_id" : { "state" : "HI" }, "pop" : 1108229 }
{ "_id" : { "state" : "RI" }, "pop" : 1003218 }
{ "_id" : { "state" : "CO" }, "pop" : 3293755 }
{ "_id" : { "state" : "MO" }, "pop" : 5110648 }
{ "_id" : { "state" : "AZ" }, "pop" : 3665228 }
{ "_id" : { "state" : "WA" }, "pop" : 4866692 }
Type "it" for more
```

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

```
> db.zipcodes.aggregate([{$group:{_id:"$state", state:{max:"$pop"}}},{sort:{state:-1}},{$limit: 3}])
{ "_id" : "IL", "state" : 112047 }
{ "_id" : "NY", "state" : 111396 }
{ "_id" : "CA", "state" : 99568 }
```

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' }
2. sort the results by population, highest first
3. limit the results to just the first 3 results. What are the top 3 cities in population?
4. What are the top 3 cities in population in Texas?

```
> db.zipcodes.aggregate({$group:{_id:{city:'$city',state:'$state'},population:{sum:'$pop'}}})
{ "_id" : { "city" : "LOMAN", "state" : "MN", "population" : 198 } }
{ "_id" : { "city" : "MONTICELLO", "state" : "IN", "population" : 13599 } }
{ "_id" : { "city" : "PYRAMID", "state" : "WV", "population" : 568 } }
{ "_id" : { "city" : "ROCHESTER", "state" : "NH", "population" : 3793 } }
{ "_id" : { "city" : "MADEIRA", "state" : "OH", "population" : 14999 } }
{ "_id" : { "city" : "MIDDLEPORT", "state" : "OH", "population" : 3433 } }
{ "_id" : { "city" : "GARRETT", "state" : "IN", "population" : 6459 } }
{ "_id" : { "city" : "PISEK", "state" : "ND", "population" : 350 } }
{ "_id" : { "city" : "SAVAGE", "state" : "NM", "population" : 7764 } }
{ "_id" : { "city" : "VAKIMA", "state" : "WA", "population" : 39091 } }
{ "_id" : { "city" : "KEARNEVILLE", "state" : "WV", "population" : 3468 } }
{ "_id" : { "city" : "BOGART", "state" : "GA", "population" : 7245 } }
{ "_id" : { "city" : "EL MONTE", "state" : "CA", "population" : 84237 } }
{ "_id" : { "city" : "MONROE", "state" : "SD", "population" : 239 } }
{ "_id" : { "city" : "ARBON", "state" : "ID", "population" : 121 } }
{ "_id" : { "city" : "FARMINGTON", "state" : "NM", "population" : 44020 } }
{ "_id" : { "city" : "EAGLE BAY", "state" : "NY", "population" : 1416 } }
{ "_id" : { "city" : "CENTREVILLE", "state" : "MI", "population" : 3606 } }
{ "_id" : { "city" : "MEADVIEW", "state" : "AZ", "population" : 118 } }
{ "_id" : { "city" : "KIRBY", "state" : "WV", "population" : 303 } }
Type "it" for more
```

2. sort the results by population, highest first

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

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

```
> db.zipcodes.aggregate([{$group:{_id:"$city", city:{max:"$pop"}}},{sort:{city:-1}},{$limit: 3}])
{ "_id" : "CHICAGO", "city" : 112047 }
{ "_id" : "BROOKLYN", "city" : 111396 }
{ "_id" : "NEW YORK", "city" : 106564 }
>
```

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

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

Bonus

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

```
> db.zipcodes.aggregate({$group:{_id:{city:'$city', state:'$state'},population:{avg:'$pop'}}},{ $sort:{population:-1}})
{ "_id" : { "city" : "BELL GARDENS", "state" : "CA" }, "population" : 99568 }
{ "_id" : { "city" : "NORWALK", "state" : "CA" }, "population" : 94188 }
{ "_id" : { "city" : "ARLETA", "state" : "CA" }, "population" : 88114 }
{ "_id" : { "city" : "SOUTH GATE", "state" : "CA" }, "population" : 87026 }
{ "_id" : { "city" : "RIDGEWOOD", "state" : "NY" }, "population" : 85732 }
{ "_id" : { "city" : "WESTLAND", "state" : "MI" }, "population" : 84712 }
{ "_id" : { "city" : "HOLLY PARK", "state" : "CA" }, "population" : 78511 }
{ "_id" : { "city" : "WESTMINSTER", "state" : "CA" }, "population" : 77965 }
{ "_id" : { "city" : "INDUSTRY", "state" : "CA" }, "population" : 77114 }
{ "_id" : { "city" : "COAST GUARD ISLA", "state" : "CA" }, "population" : 76110 }
{ "_id" : { "city" : "GWYNN OAK", "state" : "MD" }, "population" : 76002 }
{ "_id" : { "city" : "WOODSIDE", "state" : "NY" }, "population" : 75894 }
{ "_id" : { "city" : "CORONA", "state" : "NY" }, "population" : 75746 }
{ "_id" : { "city" : "GLEN BURNIE", "state" : "MD" }, "population" : 75692 }
{ "_id" : { "city" : "RIALTO", "state" : "CA" }, "population" : 75341 }
{ "_id" : { "city" : "JACKSON HEIGHTS", "state" : "NY" }, "population" : 72983.5 }
{ "_id" : { "city" : "HUNTINGTON PARK", "state" : "CA" }, "population" : 72139 }
{ "_id" : { "city" : "LAKE LOS ANGELES", "state" : "CA" }, "population" : 71024 }
{ "_id" : { "city" : "TAYLOR", "state" : "MI" }, "population" : 70811 }
{ "_id" : { "city" : "STAR CITY", "state" : "WV" }, "population" : 70185 }
```

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

```
> db.zipcodes.aggregate([{$group:{"_id":"$state", state:{avg:"$pop"}}},{ $sort:{state:-1}},{$limit:3}])
{ "_id" : "DC", "state" : 25287.5 }
{ "_id" : "CA", "state" : 19627.236147757256 }
{ "_id" : "FL", "state" : 15779.407960199005 }
>
```