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

db.zipcodes.find({$and:[{city:'ATLANTA'},{state:'GA'}]}).pretty();

{

"\_id" : "30303",

"city" : "ATLANTA",

"loc" : [

-84.388846,

33.752504

],

"pop" : 1845,

"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"

}

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

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

{

"\_id" : "30303",

"city" : "ATLANTA",

"loc" : [

-84.388846,

33.752504

],

"pop" : 1845,

"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" : "30305",

"city" : "ATLANTA",

"loc" : [

-84.385145,

33.831963

],

"pop" : 19122,

"state" : "GA"

}

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

db.zipcodes.aggregate([{$match: { city: {$eq:'ATLANTA'}}},{$group:{\_id:'pop',atlanta:{$sum:1}}}])

{ "\_id" : "pop", "atlanta" : 41 }

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

db.zipcodes.aggregate([{$match: { city: {$eq:'ATLANTA'}}},{$group:{\_id:'pop',atlanta:{$sum:'$pop'}}}])

{ "\_id" : "pop", "atlanta" : 630046 }

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

db.zipcodes.aggregate([{$group:{\_id:{state:'$state'},state:{$sum:'$pop'}}}])

{ "\_id" : { "state" : "AK" }, "state" : 544698 }

{ "\_id" : { "state" : "AZ" }, "state" : 3665228 }

{ "\_id" : { "state" : "UT" }, "state" : 1722850 }

{ "\_id" : { "state" : "WY" }, "state" : 453528 }

{ "\_id" : { "state" : "CO" }, "state" : 3293755 }

{ "\_id" : { "state" : "ID" }, "state" : 1006749 }

{ "\_id" : { "state" : "OK" }, "state" : 3145585 }

{ "\_id" : { "state" : "AR" }, "state" : 2350725 }

{ "\_id" : { "state" : "LA" }, "state" : 4217595 }

{ "\_id" : { "state" : "NV" }, "state" : 1201833 }

{ "\_id" : { "state" : "NE" }, "state" : 1578139 }

{ "\_id" : { "state" : "KS" }, "state" : 2475285 }

{ "\_id" : { "state" : "MO" }, "state" : 5110648 }

{ "\_id" : { "state" : "IL" }, "state" : 11427576 }

{ "\_id" : { "state" : "OH" }, "state" : 10846517 }

{ "\_id" : { "state" : "KY" }, "state" : 3675484 }

{ "\_id" : { "state" : "IN" }, "state" : 5544136 }

{ "\_id" : { "state" : "WI" }, "state" : 4891769 }

{ "\_id" : { "state" : "HI" }, "state" : 1108229 }

{ "\_id" : { "state" : "MS" }, "state" : 2573216 }

6.sort the results by population, highest first

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

{ "\_id" : { "state" : "CA" }, "population" : 29754890 }

{ "\_id" : { "state" : "NY" }, "population" : 17990402 }

{ "\_id" : { "state" : "TX" }, "population" : 16984601 }

{ "\_id" : { "state" : "FL" }, "population" : 12686644 }

{ "\_id" : { "state" : "PA" }, "population" : 11881643 }

{ "\_id" : { "state" : "IL" }, "population" : 11427576 }

{ "\_id" : { "state" : "OH" }, "population" : 10846517 }

{ "\_id" : { "state" : "MI" }, "population" : 9295297 }

{ "\_id" : { "state" : "NJ" }, "population" : 7730188 }

{ "\_id" : { "state" : "NC" }, "population" : 6628637 }

{ "\_id" : { "state" : "GA" }, "population" : 6478216 }

{ "\_id" : { "state" : "VA" }, "population" : 6181479 }

{ "\_id" : { "state" : "MA" }, "population" : 6016425 }

{ "\_id" : { "state" : "IN" }, "population" : 5544136 }

{ "\_id" : { "state" : "MO" }, "population" : 5110648 }

{ "\_id" : { "state" : "WI" }, "population" : 4891769 }

{ "\_id" : { "state" : "TN" }, "population" : 4876457 }

{ "\_id" : { "state" : "WA" }, "population" : 4866692 }

{ "\_id" : { "state" : "MD" }, "population" : 4781379 }

{ "\_id" : { "state" : "MN" }, "population" : 4372982 }

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

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

{ "\_id" : { "state" : "CA" }, "population" : 29754890 }

{ "\_id" : { "state" : "NY" }, "population" : 17990402 }

{ "\_id" : { "state" : "TX" }, "population" : 16984601 }

8.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' }

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

{ "\_id" : { "city" : "POINT BAKER", "state" : "AK" }, "population" : 426 }

{ "\_id" : { "city" : "SITKA", "state" : "AK" }, "population" : 8638 }

{ "\_id" : { "city" : "HYDABURG", "state" : "AK" }, "population" : 891 }

{ "\_id" : { "city" : "CRAIG", "state" : "AK" }, "population" : 1398 }

{ "\_id" : { "city" : "KETCHIKAN", "state" : "AK" }, "population" : 14308 }

{ "\_id" : { "city" : "PETERSBURG", "state" : "AK" }, "population" : 4253 }

{ "\_id" : { "city" : "GUSTAVUS", "state" : "AK" }, "population" : 258 }

{ "\_id" : { "city" : "ANGOON", "state" : "AK" }, "population" : 1002 }

{ "\_id" : { "city" : "JUNEAU", "state" : "AK" }, "population" : 24947 }

{ "\_id" : { "city" : "NUIQSUT", "state" : "AK" }, "population" : 354 }

{ "\_id" : { "city" : "CHALKYITSIK", "state" : "AK" }, "population" : 99 }

9.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 }

10. limit the results to just the first 3 results. What are the top 3 cities in 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 }

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

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

db.zipcodes.aggregate([{$group:{\_id:{state:'$state'},state:{$avg:'$pop'}}}])

{ "\_id" : { "state" : "AK" }, "state" : 2793.3230769230768 }

{ "\_id" : { "state" : "AZ" }, "state" : 13574.918518518518 }

{ "\_id" : { "state" : "UT" }, "state" : 8404.146341463415 }

{ "\_id" : { "state" : "WY" }, "state" : 3239.4857142857145 }

{ "\_id" : { "state" : "CO" }, "state" : 7955.929951690821 }

{ "\_id" : { "state" : "ID" }, "state" : 4126.020491803279 }

{ "\_id" : { "state" : "OK" }, "state" : 5367.892491467577 }

{ "\_id" : { "state" : "AR" }, "state" : 4066.998269896194 }

{ "\_id" : { "state" : "LA" }, "state" : 9089.644396551725 }

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

db.zipcodes.aggregate([{$group:{\_id:{state:'$state'},state:{$avg:'$pop'}}},{$sort:{state:-1}},{$limit:3}])

{ "\_id" : { "state" : "DC" }, "state" : 25287.5 }

{ "\_id" : { "state" : "CA" }, "state" : 19627.236147757256 }

{ "\_id" : { "state" : "FL" }, "state" : 15779.407960199005 }