ASSIGNMENT-2

**Atlanta Population:**

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"}]})

{ "\_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

1. Use db.zipcodes.aggregate with $match to do the same as above.

db.zipcodes.aggregate([{$match:{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

1. Use $group to count the number of zip codes in Atlanta.

db.zipcodes.aggregate([{$match:{city:"ATLANTA"}},{$group: { \_id:null, pincodes: {$sum: 1 } } }])

{ "\_id" : null, "pincodes" : 41 }

1. Use $group to find the total population in Atlanta.

db.zipcodes.aggregate([{$match:{city:"ATLANTA"}},{$group: { \_id:null, totalpopulation: {$sum: "$pop" } } }])

{ "\_id" : null, "totalpopulation" : 630046 }

**Populations By State:**

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

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

{ "\_id" : "TX", "totalPop" : 16984601 }

{ "\_id" : "NJ", "totalPop" : 7730188 }

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

{ "\_id" : "SC", "totalPop" : 3486703 }

{ "\_id" : "CT", "totalPop" : 3287116 }

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

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

{ "\_id" : "NY", "totalPop" : 17990402 }

{ "\_id" : "WV", "totalPop" : 1793146 }

{ "\_id" : "ME", "totalPop" : 1226648 }

{ "\_id" : "CA", "totalPop" : 29754890 }

{ "\_id" : "MA", "totalPop" : 6016425 }

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

{ "\_id" : "MN", "totalPop" : 4372982 }

{ "\_id" : "VA", "totalPop" : 6181479 }

{ "\_id" : "NH", "totalPop" : 1109252 }

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

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

{ "\_id" : "OR", "totalPop" : 2842321 }

{ "\_id" : "MD", "totalPop" : 4781379 }

Type "it" for more

1. Sort the results by population, highest first

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 }

Type "it" for more

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

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:**

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' }

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

{ "\_id" : "MUSKEGO", "totalPop" : 17098 }

{ "\_id" : "ELWELL", "totalPop" : 1006 }

{ "\_id" : "PELLSTON", "totalPop" : 1360 }

{ "\_id" : "MOUNT JUDEA", "totalPop" : 665 }

{ "\_id" : "VERGAS", "totalPop" : 1338 }

{ "\_id" : "PORTERSVILLE", "totalPop" : 3642 }

{ "\_id" : "READYVILLE", "totalPop" : 4572 }

{ "\_id" : "SMOAKS", "totalPop" : 2074 }

{ "\_id" : "STAR JUNCTION", "totalPop" : 2803 }

{ "\_id" : "CYCLONE", "totalPop" : 1328 }

{ "\_id" : "DAKOTA", "totalPop" : 1859 }

{ "\_id" : "DILLSBORO", "totalPop" : 3699 }

{ "\_id" : "INLET", "totalPop" : 343 }

{ "\_id" : "WEVERTOWN", "totalPop" : 137 }

{ "\_id" : "WIRT", "totalPop" : 84 }

{ "\_id" : "INVER GROVE HEIG", "totalPop" : 22753 }

{ "\_id" : "LUTCHER", "totalPop" : 3993 }

{ "\_id" : "BRADLEY", "totalPop" : 16794 }

{ "\_id" : "GOWANDA", "totalPop" : 6665 }

{ "\_id" : "OLDSMAR", "totalPop" : 12858 }

Type "it" for more

1. Sort the results by population, highest first

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

{ "\_id" : "CHICAGO", "totalPop" : 2452177 }

{ "\_id" : "BROOKLYN", "totalPop" : 2341387 }

{ "\_id" : "HOUSTON", "totalPop" : 2123053 }

{ "\_id" : "LOS ANGELES", "totalPop" : 2102295 }

{ "\_id" : "PHILADELPHIA", "totalPop" : 1639862 }

{ "\_id" : "NEW YORK", "totalPop" : 1476790 }

{ "\_id" : "BRONX", "totalPop" : 1209548 }

{ "\_id" : "SAN DIEGO", "totalPop" : 1054316 }

{ "\_id" : "DALLAS", "totalPop" : 999042 }

{ "\_id" : "DETROIT", "totalPop" : 967468 }

{ "\_id" : "PHOENIX", "totalPop" : 902249 }

{ "\_id" : "MIAMI", "totalPop" : 848436 }

{ "\_id" : "COLUMBUS", "totalPop" : 825448 }

{ "\_id" : "SAN JOSE", "totalPop" : 817497 }

{ "\_id" : "SAN ANTONIO", "totalPop" : 813188 }

{ "\_id" : "WASHINGTON", "totalPop" : 780954 }

{ "\_id" : "BALTIMORE", "totalPop" : 738846 }

{ "\_id" : "JACKSONVILLE", "totalPop" : 735505 }

{ "\_id" : "SAN FRANCISCO", "totalPop" : 723993 }

{ "\_id" : "CLEVELAND", "totalPop" : 687451 }

Type "it" for more

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

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

{ "\_id" : "CHICAGO", "totalPop" : 2452177 }

{ "\_id" : "BROOKLYN", "totalPop" : 2341387 }

{ "\_id" : "HOUSTON", "totalPop" : 2123053 }

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

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

{ "\_id" : "BROOKLYN", "totalPop" : 2300504 }

{ "\_id" : "NEW YORK", "totalPop" : 1476790 }

{ "\_id" : "BRONX", "totalPop" : 1209548 }

**Bonus:**

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

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

{ "\_id" : "VA", "averagepopulation" : 7575.341911764706 }

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

{ "\_id" : "NM", "averagepopulation" : 5489.380434782609 }

{ "\_id" : "PA", "averagepopulation" : 8149.275034293552 }

{ "\_id" : "NC", "averagepopulation" : 9402.321985815603 }

{ "\_id" : "VT", "averagepopulation" : 2315.8765432098767 }

{ "\_id" : "NV", "averagepopulation" : 11556.086538461539 }

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

{ "\_id" : "ND", "averagepopulation" : 1632.4092071611253 }

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

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

{ "\_id" : "OR", "averagepopulation" : 7401.877604166667 }

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

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

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

{ "\_id" : "DE", "averagepopulation" : 12569.207547169812 }

{ "\_id" : "KS", "averagepopulation" : 3461.937062937063 }

{ "\_id" : "IA", "averagepopulation" : 3011.301518438178 }

{ "\_id" : "MI", "averagepopulation" : 10611.069634703197 }

{ "\_id" : "IN", "averagepopulation" : 8201.384615384615 }

Type "it" for more

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

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

{ "\_id" : "VA", "averagepopulation" : 7575.341911764706 }

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

{ "\_id" : "NM", "averagepopulation" : 5489.380434782609 }