**Assignment 2**

**Atlanta Population**

1. > db.zipcodes.find({$and:[{city:"ATLANTA"},{state:"GA"}]}).pretty()

{

"\_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"

}

{

"\_id" : "30334",

"city" : "ATLANTA",

"loc" : [

-84.388188,

33.74715

],

"pop" : 0,

"state" : "GA"

}

Type "it" for more

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

{

"\_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"

}

{

"\_id" : "30334",

"city" : "ATLANTA",

"loc" : [

-84.388188,

33.74715

],

"pop" : 0,

"state" : "GA"

}

Type "it" for more

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

{ "\_id" : "ATLANTA", "count" : 41 }

1. > db.zipcodes.aggregate([ {$match:{city:"ATLANTA"}}, {$group:{\_id:"$city", total\_population:{$sum:"$pop"}}} ])

{ "\_id" : "ATLANTA", "total\_population" : 630046 }

**Population By State**

1. > db.zipcodes.aggregate([{$group:{\_id:”$state”, total\_population:{$sum:”$pop”}}} ])

{ “\_id” : “MA”, “total\_population” : 6016425 }

{ “\_id” : “MD”, “total\_population” : 4781379 }

{ “\_id” : “ME”, “total\_population” : 1226648 }

{ “\_id” : “NJ”, “total\_population” : 7730188 }

{ “\_id” : “NY”, “total\_population” : 17990402 }

{ “\_id” : “ID”, “total\_population” : 1006749 }

{ “\_id” : “CA”, “total\_population” : 29754890 }

{ “\_id” : “CT”, “total\_population” : 3287116 }

{ “\_id” : “NE”, “total\_population” : 1578139 }

{ “\_id” : “OR”, “total\_population” : 2842321 }

{ “\_id” : “MO”, “total\_population” : 5110648 }

{ “\_id” : “WV”, “total\_population” : 1793146 }

{ “\_id” : “TX”, “total\_population” : 16984601 }

{ “\_id” : “VA”, “total\_population” : 6181479 }

{ “\_id” : “WY”, “total\_population” : 453528 }

{ “\_id” : “NM”, “total\_population” : 1515069 }

{ “\_id” : “FL”, “total\_population” : 12686644 }

{ “\_id” : “OK”, “total\_population” : 3145585 }

{ “\_id” : “NV”, “total\_population” : 1201833 }

{ “\_id” : “NC”, “total\_population” : 6628637 }

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

{ "\_id" : "CA", "total\_population" : 29754890 }

{ "\_id" : "NY", "total\_population" : 17990402 }

{ "\_id" : "TX", "total\_population" : 16984601 }

{ "\_id" : "FL", "total\_population" : 12686644 }

{ "\_id" : "PA", "total\_population" : 11881643 }

{ "\_id" : "IL", "total\_population" : 11427576 }

{ "\_id" : "OH", "total\_population" : 10846517 }

{ "\_id" : "MI", "total\_population" : 9295297 }

{ "\_id" : "NJ", "total\_population" : 7730188 }

{ "\_id" : "NC", "total\_population" : 6628637 }

{ "\_id" : "GA", "total\_population" : 6478216 }

{ "\_id" : "VA", "total\_population" : 6181479 }

{ "\_id" : "MA", "total\_population" : 6016425 }

{ "\_id" : "IN", "total\_population" : 5544136 }

{ "\_id" : "MO", "total\_population" : 5110648 }

{ "\_id" : "WI", "total\_population" : 4891769 }

{ "\_id" : "TN", "total\_population" : 4876457 }

{ "\_id" : "WA", "total\_population" : 4866692 }

{ "\_id" : "MD", "total\_population" : 4781379 }

{ "\_id" : "MN", "total\_population" : 4372982 }

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

{ "\_id" : "CA", "total\_population" : 29754890 }

{ "\_id" : "NY", "total\_population" : 17990402 }

{ "\_id" : "TX", "total\_population" : 16984601 }

**Populations by City**

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

{ "\_id" : { "city" : "HEPHZIBAH", "state" : "GA" }, "total\_population" : 27838 }

{ "\_id" : { "city" : "PORT BYRON", "state" : "IL" }, "total\_population" : 3441 }

{ "\_id" : { "city" : "MARBLE CANYON", "state" : "AZ" }, "total\_population" : 564 }

{ "\_id" : { "city" : "CARNELIAN BAY", "state" : "CA" }, "total\_population" : 620 }

{ "\_id" : { "city" : "WYCKOFF", "state" : "NJ" }, "total\_population" : 15372 }

{ "\_id" : { "city" : "HARPERSVILLE", "state" : "AL" }, "total\_population" : 4905 }

{ "\_id" : { "city" : "VICI", "state" : "OK" }, "total\_population" : 1333 }

{ "\_id" : { "city" : "STEPHENS", "state" : "AR" }, "total\_population" : 2906 }

{ "\_id" : { "city" : "HUNKER", "state" : "PA" }, "total\_population" : 1592 }

{ "\_id" : { "city" : "AUDUBON", "state" : "IA" }, "total\_population" : 4034 }

{ "\_id" : { "city" : "STONY BOTTOM", "state" : "WV" }, "total\_population" : 844 }

{ "\_id" : { "city" : "RAVENNA", "state" : "KY" }, "total\_population" : 798 }

{ "\_id" : { "city" : "BEAVER", "state" : "IA" }, "total\_population" : 501 }

{ "\_id" : { "city" : "LOVING", "state" : "TX" }, "total\_population" : 156 }

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

{ "\_id" : { "city" : "CHICAGO", "state" : "IL" }, "total\_population" : 2452177 }

{ "\_id" : { "city" : "BROOKLYN", "state" : "NY" }, "total\_population" : 2300504 }

{ "\_id" : { "city" : "LOS ANGELES", "state" : "CA" }, "total\_population" : 2102295 }

{ "\_id" : { "city" : "HOUSTON", "state" : "TX" }, "total\_population" : 2095918 }

{ "\_id" : { "city" : "PHILADELPHIA", "state" : "PA" }, "total\_population" : 1610956 }

{ "\_id" : { "city" : "NEW YORK", "state" : "NY" }, "total\_population" : 1476790 }

{ "\_id" : { "city" : "BRONX", "state" : "NY" }, "total\_population" : 1209548 }

{ "\_id" : { "city" : "SAN DIEGO", "state" : "CA" }, "total\_population" : 1049298 }

{ "\_id" : { "city" : "DETROIT", "state" : "MI" }, "total\_population" : 963243 }

{ "\_id" : { "city" : "DALLAS", "state" : "TX" }, "total\_population" : 940191 }

{ "\_id" : { "city" : "PHOENIX", "state" : "AZ" }, "total\_population" : 890853 }

{ "\_id" : { "city" : "MIAMI", "state" : "FL" }, "total\_population" : 825232 }

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

{ "\_id" : { "city" : "CHICAGO", "state" : "IL" }, "total\_population" : 2452177 }

{ "\_id" : { "city" : "BROOKLYN", "state" : "NY" }, "total\_population" : 2300504 }

{ "\_id" : { "city" : "LOS ANGELES", "state" : "CA" }, "total\_population" : 2102295 }

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

{ "\_id" : { "city" : "HOUSTON", "state" : "TX" }, "total\_population" : 2095918 }

{ "\_id" : { "city" : "DALLAS", "state" : "TX" }, "total\_population" : 940191 }

{ "\_id" : { "city" : "SAN ANTONIO", "state" : "TX" }, "total\_population" : 811792 }

**Bonus**

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

{ "\_id" : "DE", "Average\_population" : 12569.207547169812 }

{ "\_id" : "IN", "Average\_population" : 8201.384615384615 }

{ "\_id" : "AL", "Average\_population" : 7126.255731922399 }

{ "\_id" : "MN", "Average\_population" : 4958.02947845805 }

{ "\_id" : "KS", "Average\_population" : 3461.937062937063 }

{ "\_id" : "TN", "Average\_population" : 8378.792096219931 }

{ "\_id" : "MS", "Average\_population" : 7088.749311294766 }

{ "\_id" : "HI", "Average\_population" : 13852.8625 }

{ "\_id" : "MT", "Average\_population" : 2544.420382165605 }

{ "\_id" : "SD", "Average\_population" : 1810.9296875 }

{ "\_id" : "IA", "Average\_population" : 3011.301518438178 }

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

{ "\_id" : "DC", "Average\_population" : 25287.5 }

{ "\_id" : "CA", "Average\_population" : 19627.236147757256 }

{ "\_id" : "FL", "Average\_population" : 15779.407960199005 }