**MongoDB –Aggregation Answers**

# Atlanta Population

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

Atlas atlas-r6l39o -shard-0 [primary] population> db.zipcodes.find({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'

}

]

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

Atlas atlas-r6l39o-shard-0 [primary] population> 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 ],

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\_id: '30306',

city: 'ATLANTA',

loc: [ -84.351418, 33.786027 ],

pop: 20081,

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\_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,

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pop: 34017,

state: 'GA'

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\_id: '30311',

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loc: [ -84.470219, 33.722957 ],

pop: 34880,

state: 'GA'

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\_id: '30312',

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state: 'GA'

},

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\_id: '30313',

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pop: 8038,

state: 'GA'

},

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\_id: '30314',

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pop: 26649,

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\_id: '30315',

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\_id: '30316',

city: 'ATLANTA',

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pop: 34668,

state: 'GA'

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\_id: '30317',

city: 'ATLANTA',

loc: [ -84.31685, 33.749788 ],

pop: 16395,

state: 'GA'

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\_id: '30318',

city: 'ATLANTA',

loc: [ -84.445432, 33.786454 ],

pop: 53894,

state: 'GA'

},

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\_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'

}

]

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

Atlas atlas-r6l39o -shard-0 [primary] population> db.zipcodes.aggregate([{$match:{city:'ATLANTA'}},{$group:{\_id:'$\_id'}},{$count:'uni\_zipcode'}])

[ { uni\_zipcode: 41 } ]

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

Atlas atlas-r6l39o -shard-0 [primary] population> db.zipcodes.aggregate([{$match:{city:'ATLANTA'}},{$group:{\_id:'city',totalpop:{$sum:'$pop'}}}])

[ { \_id: 'city', totalpop: 630046 } ]

# Populations By State

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

Atlas atlas-r6139o-shard-0 [primary] population> db.zipcodes.aggregate([{$group:{\_id:'$state',totalpop:{$sum:'$pop'}}}])

[

{ \_id: 'NH', totalpop: 1109252 },

{ \_id: 'OK', totalpop: 3145585 },

{ \_id: 'CO', totalpop: 3293755 },

{ \_id: 'MN', totalpop: 4372982 },

{ \_id: 'NE', totalpop: 1578139 },

{ \_id: 'NY', totalpop: 17990402 },

{ \_id: 'PA', totalpop: 11881643 },

{ \_id: 'NV', totalpop: 1201833 },

{ \_id: 'AZ', totalpop: 3665228 },

{ \_id: 'AR', totalpop: 2350725 },

{ \_id: 'ME', totalpop: 1226648 },

{ \_id: 'FL', totalpop: 12686644 },

{ \_id: 'IN', totalpop: 5544136 },

{ \_id: 'KS', totalpop: 2475285 },

{ \_id: 'CA', totalpop: 29754890 },

{ \_id: 'HI', totalpop: 1108229 },

{ \_id: 'VT', totalpop: 562758 },

{ \_id: 'GA', totalpop: 6478216 },

{ \_id: 'AL', totalpop: 4040587 },

{ \_id: 'IA', totalpop: 2776420 }

]

2.sort the results by population, highest first

Atlas atlas-r6l39o -shard-0 [primary] population> 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 }

]

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

Atlas atlas-r6l39o-shard-0 [primary] 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 }

]

Atlas atlas-r6l39o-shard-0 [primary] population> db.zipcodes.aggregate([{$group:{\_id: { city: '$city', state: '$state' } ,totalpop:{$sum:'$pop'}}}])

[

{ \_id: { city: 'IOWA CITY', state: 'IA' }, totalpop: 69058 },

{ \_id: { city: 'AVALON', state: 'NJ' }, totalpop: 1813 },

{ \_id: { city: 'BORDEN', state: 'IN' }, totalpop: 4080 },

{ \_id: { city: 'SOUTH EDMESTON', state: 'NY' }, totalpop: 1224 },

{ \_id: { city: 'ABITA SPRINGS', state: 'LA' }, totalpop: 2659 },

{ \_id: { city: 'MONROE CITY', state: 'TX' }, totalpop: 7969 },

{ \_id: { city: 'EAGAR', state: 'AZ' }, totalpop: 482 },

{ \_id: { city: 'SWEDESBORO', state: 'NJ' }, totalpop: 7968 },

{ \_id: { city: 'SHORTERVILLE', state: 'AL' }, totalpop: 2503 },

{ \_id: { city: 'GEARY', state: 'OK' }, totalpop: 2124 },

{ \_id: { city: 'WINNEMUCCA', state: 'NV' }, totalpop: 10951 },

{ \_id: { city: 'DAIRY', state: 'OR' }, totalpop: 8 },

{ \_id: { city: 'DELTA', state: 'OH' }, totalpop: 11110 },

{ \_id: { city: 'ANNONA', state: 'TX' }, totalpop: 949 },

{ \_id: { city: 'ANDERSON', state: 'OH' }, totalpop: 42456 },

{ \_id: { city: 'FOXTON', state: 'CO' }, totalpop: 127 },

{ \_id: { city: 'FARMLAND', state: 'IN' }, totalpop: 1784 },

{ \_id: { city: 'GREENACRES', state: 'WA' }, totalpop: 5312 },

{ \_id: { city: 'PROCTOR', state: 'MN' }, totalpop: 6881 },

{ \_id: { city: 'PHILO', state: 'IL' }, totalpop: 1377 }

]

# 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' }

Atlas atlas-r6l39o-shard-0 [primary] population> db.zipcodes.aggregate([{$group:{\_id: { city: '$city', state: '$state' } ,totalpop:{$sum:'$pop'}}},{$sort:{totalpop:-1}}])

[

{ \_id: { city: 'CHICAGO', state: 'IL' }, totalpop: 2452177 },

{ \_id: { city: 'BROOKLYN', state: 'NY' }, totalpop: 2300504 },

{ \_id: { city: 'LOS ANGELES', state: 'CA' }, totalpop: 2102295 },

{ \_id: { city: 'HOUSTON', state: 'TX' }, totalpop: 2095918 },

{ \_id: { city: 'PHILADELPHIA', state: 'PA' }, totalpop: 1610956 },

{ \_id: { city: 'NEW YORK', state: 'NY' }, totalpop: 1476790 },

{ \_id: { city: 'BRONX', state: 'NY' }, totalpop: 1209548 },

{ \_id: { city: 'SAN DIEGO', state: 'CA' }, totalpop: 1049298 },

{ \_id: { city: 'DETROIT', state: 'MI' }, totalpop: 963243 },

{ \_id: { city: 'DALLAS', state: 'TX' }, totalpop: 940191 },

{ \_id: { city: 'PHOENIX', state: 'AZ' }, totalpop: 890853 },

{ \_id: { city: 'MIAMI', state: 'FL' }, totalpop: 825232 },

{ \_id: { city: 'SAN JOSE', state: 'CA' }, totalpop: 816653 },

{ \_id: { city: 'SAN ANTONIO', state: 'TX' }, totalpop: 811792 },

{ \_id: { city: 'BALTIMORE', state: 'MD' }, totalpop: 733081 },

{ \_id: { city: 'SAN FRANCISCO', state: 'CA' }, totalpop: 723993 },

{ \_id: { city: 'MEMPHIS', state: 'TN' }, totalpop: 632837 },

{ \_id: { city: 'SACRAMENTO', state: 'CA' }, totalpop: 628279 },

{ \_id: { city: 'JACKSONVILLE', state: 'FL' }, totalpop: 610160 },

{ \_id: { city: 'ATLANTA', state: 'GA' }, totalpop: 609591 }

]

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

Atlas atlas-r6l39o-shard-0 [primary] population> db.zipcodes.aggregate([{$group:{\_id: { city: '$city', state: '$state' } ,totalpop:{$sum:'$pop'}}},{$sort:{totalpop:-1}},{$limit:3}])

[

{ \_id: { city: 'CHICAGO', state: 'IL' }, totalpop: 2452177 },

{ \_id: { city: 'BROOKLYN', state: 'NY' }, totalpop: 2300504 },

{ \_id: { city: 'LOS ANGELES', state: 'CA' }, totalpop: 2102295 }

]

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

Atlas atlas-r6l39o-shard-0 [primary] population> db.zipcodes.aggregate([{$match:{state:'TX'}},{$group:{\_id:{state:'$state',city:'$city'},totalpop:{$sum:'$pop'}}},{$sort:{totalpop:-1}},{$limit:3}])

[

{ \_id: { state: 'TX', city: 'HOUSTON' }, totalpop: 2095918 },

{ \_id: { state: 'TX', city: 'DALLAS' }, totalpop: 940191 },

{ \_id: { state: 'TX', city: 'SAN ANTONIO' }, totalpop: 811792 }

]

# Bonus

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

Atlas atlas-r6l39ol-shard-0 [primary] population> db.zipcodes.aggregate([{$group:{\_id:{state:'$state',city:'$city'},Avgpop:{$avg:'$pop'}}}])

[

{ \_id: { state: 'LA', city: 'LOCKPORT' }, Avgpop: 10863 },

{ \_id: { state: 'FL', city: 'LAKE ALFRED' }, Avgpop: 3916 },

{ \_id: { state: 'AR', city: 'SMACKOVER' }, Avgpop: 3554 },

{ \_id: { state: 'OR', city: 'COLTON' }, Avgpop: 4223 },

{

\_id: { state: 'CA', city: 'SAN LEANDRO' },

Avgpop: 28104.333333333332

},

{ \_id: { state: 'ME', city: 'OAKLAND' }, Avgpop: 8695 },

{ \_id: { state: 'OH', city: 'ATHENS' }, Avgpop: 28523 },

{ \_id: { state: 'NM', city: 'CUBA' }, Avgpop: 2764 },

{ \_id: { state: 'AR', city: 'FRIENDSHIP' }, Avgpop: 626 },

{ \_id: { state: 'AL', city: 'HOKES BLUFF' }, Avgpop: 20057 },

{ \_id: { state: 'IA', city: 'ALLEMAN' }, Avgpop: 449 },

{ \_id: { state: 'NJ', city: 'LAFAYETTE' }, Avgpop: 2992 },

{ \_id: { state: 'PA', city: 'BELLWOOD' }, Avgpop: 8152 },

{ \_id: { state: 'TN', city: 'NORMANDY' }, Avgpop: 1308 },

{ \_id: { state: 'IL', city: 'ROCKPORT' }, Avgpop: 641 },

{ \_id: { state: 'AR', city: 'DARDANELLE' }, Avgpop: 8281 },

{ \_id: { state: 'KY', city: 'SUMMERSVILLE' }, Avgpop: 778 },

{ \_id: { state: 'NY', city: 'MAYFAIR' }, Avgpop: 27516 },

{ \_id: { state: 'MD', city: 'SUNDERLAND' }, Avgpop: 1664 },

{ \_id: { state: 'ME', city: 'ATHENS' }, Avgpop: 897 }

]

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

Atlas atlas-r6l39o-shard-0 [primary] population> 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 }

]