**MongoDB -Aggregation Exercises**

**C:\Users\AKASH\Downloads>mongoimport --db population --collection zipcodes --file zips.json**

2021-01-14T17:04:12.959+0530 connected to: mongodb://localhost/

2021-01-14T17:04:13.926+0530 29353 document(s) imported successfully. 0 document(s) failed to import.

**Atlanta Population**

1. **> 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" : "30310", "city" : "ATLANTA", "loc" : [ -84.423173, 33.727849 ], "pop" : 34017, "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" : "30311", "city" : "ATLANTA", "loc" : [ -84.470219, 33.722957 ], "pop" : 34880, "state" : "GA" }

{ "\_id" : "30313", "city" : "ATLANTA", "loc" : [ -84.39352, 33.76825 ], "pop" : 8038, "state" : "GA" }

{ "\_id" : "30312", "city" : "ATLANTA", "loc" : [ -84.378125, 33.746749 ], "pop" : 17683, "state" : "GA" }

{ "\_id" : "30314", "city" : "ATLANTA", "loc" : [ -84.425546, 33.756103 ], "pop" : 26649, "state" : "GA" }

{ "\_id" : "30317", "city" : "ATLANTA", "loc" : [ -84.31685, 33.749788 ], "pop" : 16395, "state" : "GA" }

{ "\_id" : "30316", "city" : "ATLANTA", "loc" : [ -84.333913, 33.721686 ], "pop" : 34668, "state" : "GA" }

{ "\_id" : "30315", "city" : "ATLANTA", "loc" : [ -84.380771, 33.705062 ], "pop" : 41061, "state" : "GA" }

{ "\_id" : "30318", "city" : "ATLANTA", "loc" : [ -84.445432, 33.786454 ], "pop" : 53894, "state" : "GA" }

{ "\_id" : "30326", "city" : "ATLANTA", "loc" : [ -84.358232, 33.848168 ], "pop" : 125, "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" : "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

> it

{ "\_id" : "30330", "city" : "ATLANTA", "loc" : [ -84.434735, 33.70645 ], "pop" : 643, "state" : "GA" }

{ "\_id" : "30331", "city" : "ATLANTA", "loc" : [ -84.520468, 33.72241 ], "pop" : 38185, "state" : "GA" }

{ "\_id" : "30336", "city" : "ATLANTA", "loc" : [ -84.510028, 33.78534 ], "pop" : 1228, "state" : "GA" }

{ "\_id" : "30334", "city" : "ATLANTA", "loc" : [ -84.388188, 33.74715 ], "pop" : 0, "state" : "GA" }

{ "\_id" : "30339", "city" : "ATLANTA", "loc" : [ -84.462879, 33.87125 ], "pop" : 11158, "state" : "GA" }

{ "\_id" : "30342", "city" : "ATLANTA", "loc" : [ -84.376091, 33.884245 ], "pop" : 19057, "state" : "GA" }

{ "\_id" : "30346", "city" : "ATLANTA", "loc" : [ -84.333354, 33.926717 ], "pop" : 18, "state" : "GA" }

{ "\_id" : "30350", "city" : "ATLANTA", "loc" : [ -84.341146, 33.979471 ], "pop" : 24573, "state" : "GA" }

{ "\_id" : "30345", "city" : "ATLANTA", "loc" : [ -84.286961, 33.851347 ], "pop" : 19825, "state" : "GA" }

{ "\_id" : "30360", "city" : "ATLANTA", "loc" : [ -84.271645, 33.937772 ], "pop" : 16023, "state" : "GA" }

{ "\_id" : "30349", "city" : "ATLANTA", "loc" : [ -84.481258, 33.605331 ], "pop" : 48116, "state" : "GA" }

1. **> 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" }

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{ "\_id" : "30310", "city" : "ATLANTA", "loc" : [ -84.423173, 33.727849 ], "pop" : 34017, "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" }

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{ "\_id" : "30311", "city" : "ATLANTA", "loc" : [ -84.470219, 33.722957 ], "pop" : 34880, "state" : "GA" }

{ "\_id" : "30313", "city" : "ATLANTA", "loc" : [ -84.39352, 33.76825 ], "pop" : 8038, "state" : "GA" }

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{ "\_id" : "30326", "city" : "ATLANTA", "loc" : [ -84.358232, 33.848168 ], "pop" : 125, "state" : "GA" }

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{ "\_id" : "30349", "city" : "ATLANTA", "loc" : [ -84.481258, 33.605331 ], "pop" : 48116, "state" : "GA" }

1. **> db.zipcodes.aggregate([{$match: {city: 'ATLANTA'}},{$count: "total\_zipcodes"}])**

{ "total\_zipcodes" : 41 }

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

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

**Populations By State**

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

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

{ "\_id" : "DC", "total" : 606900 }

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

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

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

{ "\_id" : "NM", "total" : 1515069 }

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Type "it" for more

> it

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

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

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

{ "\_id" : "MT", "total" : 798948 }

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

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

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

{ "\_id" : "VT", "total" : 562758 }

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

{ "\_id" : "ND", "total" : 638272 }

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

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

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

{ "\_id" : "AL", "total" : 4040587 }

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

{ "\_id" : "RI", "total" : 1003218 }

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

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

{ "\_id" : "DE", "total" : 666168 }

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

Type "it" for more

> it

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

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

{ "\_id" : "IA", "total" : 2776420 }

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

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

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

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

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

{ "\_id" : "SD", "total" : 695397 }

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Type "it" for more

> it

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

{ "\_id" : "AL", "total" : 4040587 }

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

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

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

{ "\_id" : "NM", "total" : 1515069 }

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

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

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

Type "it" for more

> it

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

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

{ "\_id" : "RI", "total" : 1003218 }

{ "\_id" : "MT", "total" : 798948 }

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{ "\_id" : "ND", "total" : 638272 }

{ "\_id" : "DC", "total" : 606900 }

{ "\_id" : "VT", "total" : 562758 }

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

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

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

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

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

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

**Populations by City**

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

{ "\_id" : { "city" : "GOULD", "state" : "OK" }, "total" : 553 }

{ "\_id" : { "city" : "CHEYNEY", "state" : "PA" }, "total" : 198 }

{ "\_id" : { "city" : "ROCKBRIDGE", "state" : "OH" }, "total" : 2063 }

{ "\_id" : { "city" : "DANVERS", "state" : "MN" }, "total" : 710 }

{ "\_id" : { "city" : "JESSE", "state" : "WV" }, "total" : 585 }

{ "\_id" : { "city" : "INTERLACHEN", "state" : "FL" }, "total" : 15416 }

{ "\_id" : { "city" : "GOTHENBURG", "state" : "NE" }, "total" : 3739 }

{ "\_id" : { "city" : "AUGUSTA", "state" : "AR" }, "total" : 3702 }

{ "\_id" : { "city" : "VALDEZ", "state" : "NM" }, "total" : 238 }

{ "\_id" : { "city" : "DOS PALOS", "state" : "CA" }, "total" : 9311 }

{ "\_id" : { "city" : "OSCEOLA", "state" : "IN" }, "total" : 8029 }

{ "\_id" : { "city" : "NORMANDY", "state" : "TN" }, "total" : 1308 }

{ "\_id" : { "city" : "HINSDALE", "state" : "NH" }, "total" : 3936 }

{ "\_id" : { "city" : "NORTH GROSVENORD", "state" : "CT" }, "total" : 5641 }

{ "\_id" : { "city" : "TAYLORSVILLE", "state" : "MS" }, "total" : 2996 }

{ "\_id" : { "city" : "IMLAY CITY", "state" : "MI" }, "total" : 6493 }

{ "\_id" : { "city" : "GREENWOOD", "state" : "CA" }, "total" : 226 }

{ "\_id" : { "city" : "GRAHAM", "state" : "NC" }, "total" : 19723 }

{ "\_id" : { "city" : "KEELINE", "state" : "WY" }, "total" : 209 }

{ "\_id" : { "city" : "EDGEMONT", "state" : "SD" }, "total" : 1264 }

Type "it" for more

So on…

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

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

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

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

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

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

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

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

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

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

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

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

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

{ "\_id" : { "city" : "SAN JOSE", "state" : "CA" }, "total" : 816653 }

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

{ "\_id" : { "city" : "BALTIMORE", "state" : "MD" }, "total" : 733081 }

{ "\_id" : { "city" : "SAN FRANCISCO", "state" : "CA" }, "total" : 723993 }

{ "\_id" : { "city" : "MEMPHIS", "state" : "TN" }, "total" : 632837 }

{ "\_id" : { "city" : "SACRAMENTO", "state" : "CA" }, "total" : 628279 }

{ "\_id" : { "city" : "JACKSONVILLE", "state" : "FL" }, "total" : 610160 }

{ "\_id" : { "city" : "ATLANTA", "state" : "GA" }, "total" : 609591 }

Type "it" for more

So on…..

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

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

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

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

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

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

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

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

**Bonus**

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

{ "\_id" : { "city" : "IANTHA", "state" : "MO" }, "total" : 7847 }

{ "\_id" : { "city" : "ELKINS", "state" : "AR" }, "total" : 1767 }

{ "\_id" : { "city" : "PHILOMATH", "state" : "OR" }, "total" : 6879 }

{ "\_id" : { "city" : "JOHNSTON", "state" : "SC" }, "total" : 4616 }

{ "\_id" : { "city" : "CLARINGTON", "state" : "OH" }, "total" : 1890 }

{ "\_id" : { "city" : "BIRDEYE", "state" : "AR" }, "total" : 505 }

{ "\_id" : { "city" : "LOUISVILLE", "state" : "KY" }, "total" : 19203.866666666665 }

{ "\_id" : { "city" : "HOUGHTON", "state" : "NY" }, "total" : 173 }

{ "\_id" : { "city" : "PONCA", "state" : "AR" }, "total" : 435 }

{ "\_id" : { "city" : "PILOT POINT", "state" : "TX" }, "total" : 4183 }

{ "\_id" : { "city" : "KINGSTON", "state" : "NH" }, "total" : 6111 }

{ "\_id" : { "city" : "NEW GLARUS", "state" : "WI" }, "total" : 2540 }

{ "\_id" : { "city" : "CLEO SPRINGS", "state" : "OK" }, "total" : 630 }

{ "\_id" : { "city" : "LOUELLEN", "state" : "KY" }, "total" : 4578 }

{ "\_id" : { "city" : "LAPINE", "state" : "AL" }, "total" : 338 }

{ "\_id" : { "city" : "MARGATE CITY", "state" : "NJ" }, "total" : 9484 }

{ "\_id" : { "city" : "PUNTA GORDA", "state" : "FL" }, "total" : 8563.75 }

{ "\_id" : { "city" : "DUKE", "state" : "MO" }, "total" : 166 }

{ "\_id" : { "city" : "CARRIER", "state" : "OK" }, "total" : 619 }

{ "\_id" : { "city" : "WEST SUNBURY", "state" : "PA" }, "total" : 1999 }

Type "it" for more

So…

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

{ "\_id" : { "city" : "BELL GARDENS", "state" : "CA" }, "total" : 99568 }

{ "\_id" : { "city" : "NORWALK", "state" : "CA" }, "total" : 94188 }

{ "\_id" : { "city" : "ARLETA", "state" : "CA" }, "total" : 88114 }