

MongoDB Assignment 2 (Aggregation Exercises)

```
C:\Program Files\MongoDB\Server\5.0\bin>mongoimport --db population --collection zipcodes --file C:\zip.json
2021-08-02T00:06:57.447+0530   connected to: mongodb://localhost/
2021-08-02T00:06:58.294+0530   29353 document(s) imported successfully. 0 document(s) failed to import.
```

```
CA. Command Prompt - mongo
> db.zipcodes.find().pretty();
{
  "_id" : "01005",
  "city" : "BARRE",
  "loc" : [
    -72.108354,
    42.409698
  ],
  "pop" : 4546,
  "state" : "MA"
}
{
  "_id" : "01007",
  "city" : "BELCHERTOWN",
  "loc" : [
    -72.410953,
    42.275103
  ],
  "pop" : 10579,
  "state" : "MA"
}
{
  "_id" : "01002",
  "city" : "CUSHMAN",
  "loc" : [
    -72.51565,
    42.377017
  ],
  "pop" : 36963,
  "state" : "MA"
}
{
  "_id" : "01001",
  "city" : "AGAWAM",
  "loc" : [
    -72.622739,
    42.070206
  ],
  "pop" : 15338,
  "state" : "MA"
}
{
  "_id" : "01008",
  "city" : "BLANDFORD",
```

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": "30307", "city": "ATLANTA", "loc": [ -84.335957, 33.769138 ], "pop": 16330, "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": "30308", "city": "ATLANTA", "loc": [ -84.375744, 33.771839 ], "pop": 8549, "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": "30315", "city": "ATLANTA", "loc": [ -84.380771, 33.705062 ], "pop": 41061, "state": "GA" }
{"_id": "30313", "city": "ATLANTA", "loc": [ -84.39352, 33.76825 ], "pop": 8038, "state": "GA" }
{"_id": "30309", "city": "ATLANTA", "loc": [ -84.388338, 33.798407 ], "pop": 14766, "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": "30324", "city": "ATLANTA", "loc": [ -84.354867, 33.820609 ], "pop": 15044, "state": "GA" }
{"_id": "30319", "city": "ATLANTA", "loc": [ -84.335091, 33.868728 ], "pop": 32138, "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" }
{"_id": "30334", "city": "ATLANTA", "loc": [ -84.388188, 33.74715 ], "pop": 0, "state": "GA" }
Type "it" for more
>
```

2)

Command Prompt - mongo

```
> db.zipcodes.aggregate([
... {$match:{$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": "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": "30308", "city": "ATLANTA", "loc": [ -84.375744, 33.771839 ], "pop": 8549, "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": "30315", "city": "ATLANTA", "loc": [ -84.380771, 33.705062 ], "pop": 41061, "state": "GA" }
{"_id": "30313", "city": "ATLANTA", "loc": [ -84.39352, 33.76825 ], "pop": 8038, "state": "GA" }
{"_id": "30309", "city": "ATLANTA", "loc": [ -84.388338, 33.798407 ], "pop": 14766, "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": "30324", "city": "ATLANTA", "loc": [ -84.354867, 33.820609 ], "pop": 15044, "state": "GA" }
{"_id": "30319", "city": "ATLANTA", "loc": [ -84.335091, 33.868728 ], "pop": 32138, "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" }
{"_id": "30334", "city": "ATLANTA", "loc": [ -84.388188, 33.74715 ], "pop": 0, "state": "GA" }
Type "it" for more
>
```

3)

```
> db.zipcodes.aggregate([
... {$match:{city:"ATLANTA"}},
... {$group: {_id:{city:"$city",z:"_id"},totalzipcodes:{$sum:1}}},
... {$group: {_id:"$_id.city",count:{$sum:"$totalzipcodes"}}}
... ]);
{ "_id" : "ATLANTA", "count" : 41 }
>
```

4)

```
Command Prompt - mongo
> db.zipcodes.aggregate([
... {$match:{city:"ATLANTA"}},
... {$group:{_id:"$city",totalpop:{$sum:"$pop"}}},
... {$sort:{pop:1}}
... ]);
{ "_id" : "ATLANTA", "totalpop" : 630046 }
>
```

Populations By State

1)

```
Command Prompt - mongo
> db.zipcodes.aggregate([
... {$group:{_id:"$state",totalpop:{$sum:"$pop"}}},
... {$sort:{pop:1}}
... ]);
{ "_id" : "TX", "totalpop" : 16984601 }
{ "_id" : "WI", "totalpop" : 4891769 }
{ "_id" : "IL", "totalpop" : 11427576 }
{ "_id" : "IA", "totalpop" : 2776420 }
{ "_id" : "OH", "totalpop" : 10846517 }
{ "_id" : "MA", "totalpop" : 6016425 }
{ "_id" : "SC", "totalpop" : 3486703 }
{ "_id" : "DE", "totalpop" : 666168 }
{ "_id" : "TN", "totalpop" : 4876457 }
{ "_id" : "DC", "totalpop" : 606900 }
{ "_id" : "KY", "totalpop" : 3675484 }
{ "_id" : "MI", "totalpop" : 9295297 }
{ "_id" : "PA", "totalpop" : 11881643 }
{ "_id" : "NE", "totalpop" : 1578139 }
{ "_id" : "NY", "totalpop" : 17990402 }
{ "_id" : "NH", "totalpop" : 1109252 }
{ "_id" : "WV", "totalpop" : 1793146 }
{ "_id" : "MN", "totalpop" : 4372982 }
{ "_id" : "ID", "totalpop" : 1006749 }
{ "_id" : "VA", "totalpop" : 6181479 }
Type "it" for more
>
```

2)

```
Command Prompt - mongo
> db.zipcodes.aggregate([
... {$group:{_id:"$state",totalpop:{$sum:"$pop"}}},
... {$sort:{totalpop:-1}}
... ]);
{ "_id" : "CA", "totalpop" : 29754890 }
{ "_id" : "NV", "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
>
```

3)

```
Command Prompt - mongo
> 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)

```
> db.zipcodes.aggregate([
... {$group:{_id:{city:"$city",state:"$state"},totalpop:{$sum:"$pop"}}}
... ]);
{ "_id" : { "city" : "GRISWOLD", "state" : "IA" }, "totalpop" : 1678 }
{ "_id" : { "city" : "ALEX", "state" : "OK" }, "totalpop" : 1976 }
{ "_id" : { "city" : "SMITHFIELD", "state" : "WV" }, "totalpop" : 775 }
{ "_id" : { "city" : "CLARK", "state" : "CO" }, "totalpop" : 455 }
{ "_id" : { "city" : "PINON", "state" : "AZ" }, "totalpop" : 5911 }
{ "_id" : { "city" : "DOVER", "state" : "DE" }, "totalpop" : 46005 }
{ "_id" : { "city" : "ORIENTAL", "state" : "NC" }, "totalpop" : 1985 }
{ "_id" : { "city" : "BREWSTER", "state" : "WA" }, "totalpop" : 3177 }
{ "_id" : { "city" : "WHITE LAKE", "state" : "MI" }, "totalpop" : 22306 }
{ "_id" : { "city" : "ELIZABETH", "state" : "MN" }, "totalpop" : 738 }
{ "_id" : { "city" : "SAGINAW", "state" : "MI" }, "totalpop" : 154319 }
{ "_id" : { "city" : "WOLCOTT", "state" : "IN" }, "totalpop" : 1909 }
{ "_id" : { "city" : "SAUK CENTRE", "state" : "MN" }, "totalpop" : 6025 }
{ "_id" : { "city" : "LAGRANGE", "state" : "WY" }, "totalpop" : 413 }
{ "_id" : { "city" : "EDWARDS", "state" : "NY" }, "totalpop" : 1069 }
{ "_id" : { "city" : "DRUMMOND", "state" : "WI" }, "totalpop" : 329 }
{ "_id" : { "city" : "LEE", "state" : "ME" }, "totalpop" : 832 }
{ "_id" : { "city" : "KEUTERVILLE", "state" : "ID" }, "totalpop" : 0 }
{ "_id" : { "city" : "SAINT PAUL", "state" : "MO" }, "totalpop" : 28243 }
{ "_id" : { "city" : "FORT JONES", "state" : "CA" }, "totalpop" : 2363 }
Type "it" for more
>
```

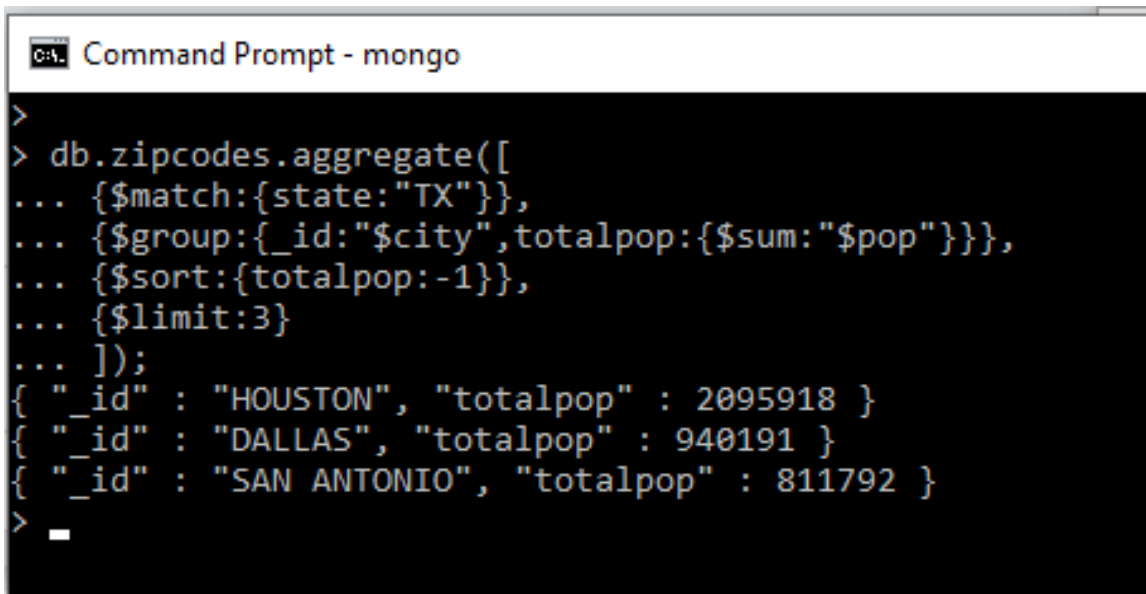
2)

```
> 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 }
Type "it" for more
>
```

3)

```
> 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 }
>
```

4)



```
C:\> Command Prompt - mongo
>
> db.zipcodes.aggregate([
... {$match:{state:"TX"}},
... {$group:{_id:"$city",totalpop:{$sum:"$pop"}}},
... {$sort:{totalpop:-1}},
... {$limit:3}
... ]);
{ "_id" : "HOUSTON", "totalpop" : 2095918 }
{ "_id" : "DALLAS", "totalpop" : 940191 }
{ "_id" : "SAN ANTONIO", "totalpop" : 811792 }
>
```