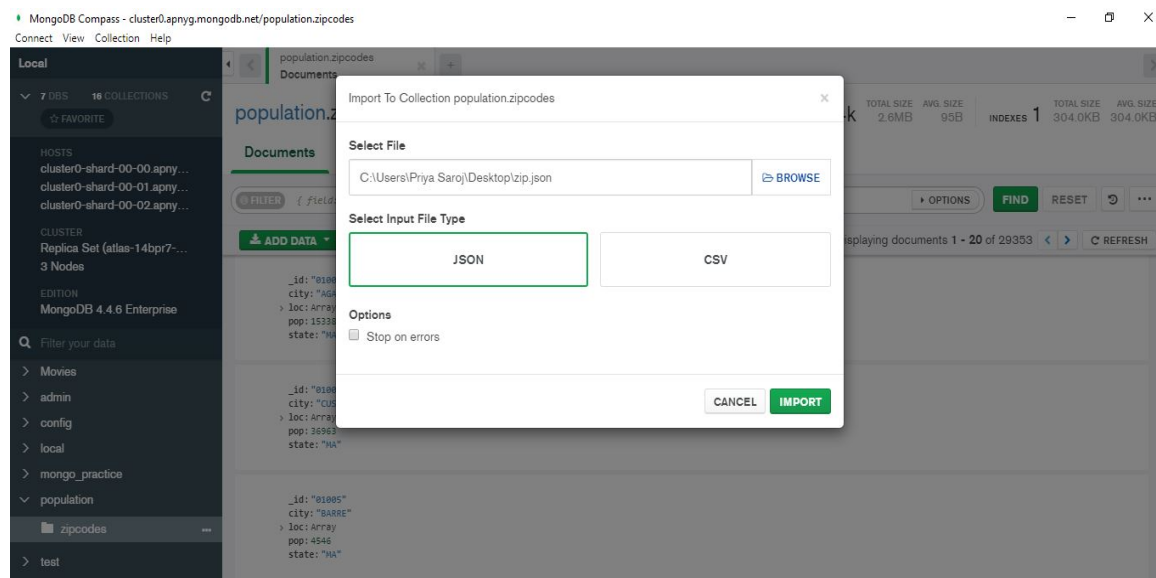


MongoDB – Aggregation Exercises

- Create Database name “population” and collection name “zipcodes”

```
C:\Windows\System32\cmd.exe - mongo "mongodb+srv://cluster0.apnyg.mongodb.net/myFirstDatabase" --username pia_25
{"t":{"$date":"2021-08-02T16:44:15.390Z"},"s":"W", "c":["NETWORK"], "id":23019, "ctx":"ReplicaSetMonitor-TaskExecutor","msg":"DNS resolution while connecting to peer
was slow","attr":{"peer":"cluster0-shard-00-01.apnyg.mongodb.net:27017","durationMillis":1049}}
Implicit session: session { "id" : UUID("f0060264-b415-47c5-8838-d275c42b3e44") }
MongoDB server version: 4.4.6
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> use population
switched to db population
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.createCollection("zipcodes");
{"ok":1,
 "$clusterTime":{
  "clusterTime":Timestamp(1627922859,1),
  "signature":{"
    "hash":BinData(0,"MCFPZ1xZQo+SQ3abKfcBRIVdKwc="),
    "keyid":NumberLong("6941958075771256833")
  }
 },
 "operationTime":Timestamp(1627922859,1)
}
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> show dbs
Movies      0.000GB
admin       0.000GB
local       3.681GB
mongo_practice 0.000GB
population  0.000GB
test        0.000GB
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> use population
switched to db population
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> show collections
zipcodes
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY>
```

- Import zips.json file into mongoDB



MongoDB Compass - cluster0.apnyg.mongodb.net/population.zipcodes

Connect View Collection Help

Local

7 DBS 18 COLLECTIONS

HOSTS

- cluster0-shard-00-00.apny...
- cluster0-shard-00-01.apny...
- cluster0-shard-00-02.apny...

CLUSTER

Replica Set (atlas-14bpr7-...

3 Nodes

EDITION

MongoDB 4.4.6 Enterprise

Filter your data

- Movies
- admin
- config
- local
- mongo_practice
- population
 - zipcodes
- test

population.zipcodes

Documents 29.4k TOTAL SIZE 2.6MB AVG SIZE 95B INDEXES 1 TOTAL SIZE 304.0KB AVG SIZE 304.0KB

Documents Aggregations Schema Explain Plan Indexes Validation

FILTER { field: "value" }

ADD DATA VIEW

Displaying documents 1 - 20 of 29353 REFRESH

```
{ "_id": "01001",  
  "city": "AGAWAM",  
  "loc": Array,  
  "pop": 15338,  
  "state": "MA" },  
{ "_id": "01002",  
  "city": "AGAWAM",  
  "loc": Array,  
  "pop": 36963,  
  "state": "MA" },  
{ "_id": "01003",  
  "city": "BARRE",  
  "loc": Array,  
  "pop": 4546,  
  "state": "MA" },  
{ "_id": "01007",  
  "city": "BELCHERTOWN",  
  "loc": Array,  
  "pop": 10579,  
  "state": "MA" }
```

Atlanta Population:

```
C:\Windows\System32\cmd.exe - mongo "mongodb+srv://cluster0.apnyg.mongodb.net/myFirstDatabase?--username pia_25"

MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> 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": [ -84.335891, 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
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> 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": [ -84.335891, 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
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY>
```

```
C:\Windows\System32\cmd.exe - mongo "mongodb+srv://cluster0.apnyg.mongodb.net/myFirstDatabase?--username pia_25"

MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{"$match":{"city":"ATLANTA"}}, {"$group": {"_id":"$city"}}, {"$count:"city"}]);
{ "city": "ATLANTA", "count": 41 }
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{"$match":{"city":"ATLANTA"}}, {"$group": {"_id":{"city":"$city", "pop":{"$sum":"$pop"}}}}]);
{ "_id": { "city": "ATLANTA", "pop": 630846 } }
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY>
```

Population by State:

```
C:\Windows\System32\cmd.exe - mongo "mongodb+srv://cluster0.apnrg.mongodb.net/myFirstDatabase?--username pia_25
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$group: {_id: "$state", Totalpop: {$sum: "$pop"}}}]);
{ "_id": "FL", "Totalpop": 12686654 }
{ "_id": "NV", "Totalpop": 1793146 }
{ "_id": "MO", "Totalpop": 5110648 }
{ "_id": "NE", "Totalpop": 1578139 }
{ "_id": "TX", "Totalpop": 16984661 }
{ "_id": "WV", "Totalpop": 453528 }
{ "_id": "VA", "Totalpop": 6181479 }
{ "_id": "NV", "Totalpop": 1261833 }
{ "_id": "ME", "Totalpop": 1226648 }
{ "_id": "ND", "Totalpop": 7730188 }
{ "_id": "MA", "Totalpop": 6816425 }
{ "_id": "MD", "Totalpop": 4781379 }
{ "_id": "CT", "Totalpop": 3287116 }
{ "_id": "ID", "Totalpop": 1806749 }
{ "_id": "MI", "Totalpop": 17990462 }
{ "_id": "WI", "Totalpop": 4891769 }
{ "_id": "CA", "Totalpop": 29754890 }
{ "_id": "OR", "Totalpop": 2842321 }
{ "_id": "UT", "Totalpop": 1722850 }
{ "_id": "IL", "Totalpop": 11427576 }
Type "it" for more

C:\Windows\System32\cmd.exe - mongo "mongodb+srv://cluster0.apnrg.mongodb.net/myFirstDatabase?--username pia_25
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$sort: {_id.pop: -1}}]);
{ "_id": "01081", "city": "AGANAM", "loc": [ -72.622739, 42.070206 ], "pop": 15338, "state": "MA" }
{ "_id": "01002", "city": "CUSHMAN", "loc": [ -72.51565, 42.377817 ], "pop": 36863, "state": "MA" }
{ "_id": "01085", "city": "BARRE", "loc": [ -72.188354, 42.409698 ], "pop": 4546, "state": "MA" }
{ "_id": "01007", "city": "BELCHERTOWN", "loc": [ -72.410953, 42.275103 ], "pop": 18570, "state": "MA" }
{ "_id": "01008", "city": "BLANDFORD", "loc": [ -72.936114, 42.182949 ], "pop": 1240, "state": "MA" }
{ "_id": "01010", "city": "BRIMFIELD", "loc": [ -72.188455, 42.116543 ], "pop": 3706, "state": "MA" }
{ "_id": "01011", "city": "CHESTER", "loc": [ -72.988761, 42.279421 ], "pop": 1688, "state": "MA" }
{ "_id": "01012", "city": "CHESTERFIELD", "loc": [ -72.833309, 42.38167 ], "pop": 177, "state": "MA" }
{ "_id": "01013", "city": "CHICOPEE", "loc": [ -72.607962, 42.162846 ], "pop": 23396, "state": "MA" }
{ "_id": "01020", "city": "CHICOPEE", "loc": [ -72.576142, 42.176443 ], "pop": 31495, "state": "MA" }
{ "_id": "01022", "city": "WESTOVER AFB", "loc": [ -72.558657, 42.196672 ], "pop": 1764, "state": "MA" }
{ "_id": "01026", "city": "CUMMINGTON", "loc": [ -72.905767, 42.435296 ], "pop": 1484, "state": "MA" }
{ "_id": "01027", "city": "MOUNTAIN", "loc": [ -72.679921, 42.264319 ], "pop": 16864, "state": "MA" }
{ "_id": "01028", "city": "EAST LONGMEADOW", "loc": [ -72.505565, 42.867263 ], "pop": 13367, "state": "MA" }
{ "_id": "01030", "city": "FEEDING HILLS", "loc": [ -72.675077, 42.07182 ], "pop": 11985, "state": "MA" }
{ "_id": "01031", "city": "GILBERTVILLE", "loc": [ -72.198585, 42.332194 ], "pop": 2385, "state": "MA" }
{ "_id": "01032", "city": "GOSHEN", "loc": [ -72.844092, 42.466234 ], "pop": 122, "state": "MA" }
{ "_id": "01033", "city": "GRANBY", "loc": [ -72.520081, 42.255704 ], "pop": 5526, "state": "MA" }
{ "_id": "01034", "city": "TOLLAND", "loc": [ -72.908793, 42.070234 ], "pop": 1652, "state": "MA" }
{ "_id": "01035", "city": "HADLEY", "loc": [ -72.571499, 42.36862 ], "pop": 4231, "state": "MA" }
Type "it" for more
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$group: {_id: {state: "$state", pop: "$pop"}}, {$sort: {_id.pop: -1}}, {$limit: 3}]);
{ "_id": { "state": "IL", "pop": 112047 } }
{ "_id": { "state": "NV", "pop": 111396 } }
{ "_id": { "state": "WV", "pop": 106564 } }
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY>
```

Population by City:

```
C:\Windows\System32\cmd.exe - mongo "mongodb+srv://cluster0.apnrg.mongodb.net/myFirstDatabase?--username pia_25
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$group: {_id: {city: "$city", state: "$state"}, Total: {$sum: "$pop"} } }]);
{ "_id": { "city": "PEPPER VILLE", "state": "NV", "Total": 11609 } }
{ "_id": { "city": "MOUND RIDGE", "state": "KS", "Total": 2307 } }
{ "_id": { "city": "NORTHFIELD", "state": "ND", "Total": 7503 } }
{ "_id": { "city": "FRANKLIN", "state": "TN", "Total": 40509 } }
{ "_id": { "city": "DAMMERON VALLEY", "state": "UT", "Total": 499 } }
{ "_id": { "city": "GALLINIA", "state": "NM", "Total": 1803 } }
{ "_id": { "city": "BETHEL", "state": "NV", "Total": 139 } }
{ "_id": { "city": "KINZERS", "state": "PA", "Total": 2524 } }
{ "_id": { "city": "HUFF", "state": "KY", "Total": 92 } }
{ "_id": { "city": "BAYLIS", "state": "IL", "Total": 628 } }
{ "_id": { "city": "AMES", "state": "NE", "Total": 141 } }
{ "_id": { "city": "ENOCHS", "state": "TX", "Total": 53 } }
{ "_id": { "city": "NORTH JACKSON", "state": "OH", "Total": 2448 } }
{ "_id": { "city": "HILLSIDE", "state": "NJ", "Total": 20860 } }
{ "_id": { "city": "FORRESTON", "state": "IL", "Total": 2261 } }
{ "_id": { "city": "CRESCENT", "state": "OK", "Total": 2832 } }
{ "_id": { "city": "STEBURN", "state": "ME", "Total": 773 } }
{ "_id": { "city": "HEATHROW", "state": "FL", "Total": 9959 } }
{ "_id": { "city": "CLAY CITY", "state": "IL", "Total": 1753 } }
{ "_id": { "city": "DRYDEN", "state": "NV", "Total": 4659 } }
Type "it" for more
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$group: {_id: "$city", Totalpop: {$sum: "$pop"}}}]);
{ "_id": "STETSONVILLE", "Totalpop": 1241 }
{ "_id": "HINES", "Totalpop": 1283 }
{ "_id": "NEMAH", "Totalpop": 784 }
{ "_id": "COMMERVILLE", "Totalpop": 25503 }
{ "_id": "AVRSHIRE", "Totalpop": 413 }
{ "_id": "LEVELS", "Totalpop": 28 }
{ "_id": "SMILAX", "Totalpop": 634 }
{ "_id": "SPRING PARK", "Totalpop": 1571 }
{ "_id": "MONTICELLO", "Totalpop": 1923 }
{ "_id": "CAMPO", "Totalpop": 3144 }
{ "_id": "BICKLETON", "Totalpop": 329 }
{ "_id": "CENTRAL ISLIP", "Totalpop": 29418 }
{ "_id": "PERSIA", "Totalpop": 691 }
{ "_id": "BOWLER", "Totalpop": 2777 }
{ "_id": "FLOWERY BRANCH", "Totalpop": 9361 }
{ "_id": "VANCOUVER", "Totalpop": 100971 }
{ "_id": "WOODACRE", "Totalpop": 1524 }
{ "_id": "EXPORT", "Totalpop": 8364 }
{ "_id": "HUSTLE", "Totalpop": 782 }
{ "_id": "MILLIFORD", "Totalpop": 349 }
Type "it" for more
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY>
```

```

C:\Windows\System32\cmd.exe - mongo "mongodb+srv://cluster0.apnyg.mongodb.net/myFirstDatabase" --username pia_25
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$group: {_id:{city:"$city", pop:"$pop"}}, {$sort: {"_id.pop": -1 }}, {$limit:3 }]);
{ "_id" : { "city" : "CHICAGO", "pop" : 112847 } }
{ "_id" : { "city" : "BROOKLYN", "pop" : 111396 } }
{ "_id" : { "city" : "NEW YORK", "pop" : 106564 } }
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$group: {_id:{city:"$city",state:"Texas"}, total:{$sum:"$pop"}}}, {$sort: {total: -1 }}, {$limit:3 }]);
{ "_id" : { "city" : "CHICAGO", "state" : "Texas" }, "total" : 2452177 }
{ "_id" : { "city" : "BROOKLYN", "state" : "Texas" }, "total" : 2341387 }
{ "_id" : { "city" : "HOUSTON", "state" : "Texas" }, "total" : 2123053 }
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY>

```

Bonus

```

C:\Windows\System32\cmd.exe - mongo "mongodb+srv://cluster0.apnyg.mongodb.net/myFirstDatabase" --username pia_25
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$group: {_id:{state:"$state",city:"$city"}, avgPop:{$avg:"$pop"}}}, {$limit:3 }]);
{ "_id" : { "state" : "GA", "city" : "MACON" }, "avgPop" : 28703 }
{ "_id" : { "state" : "AL", "city" : "BROWNSBORO" }, "avgPop" : 1793 }
{ "_id" : { "state" : "IL", "city" : "LITTLE INDIAN" }, "avgPop" : 2144 }
{ "_id" : { "state" : "TN", "city" : "CELINA" }, "avgPop" : 4102 }
{ "_id" : { "state" : "CO", "city" : "GRANITE" }, "avgPop" : 79 }
{ "_id" : { "state" : "ND", "city" : "RIDGEFIELD" }, "avgPop" : 9753 }
{ "_id" : { "state" : "NJ", "city" : "WVCKOFF" }, "avgPop" : 15372 }
{ "_id" : { "state" : "WI", "city" : "NEW HOLSTEIN" }, "avgPop" : 5536 }
{ "_id" : { "state" : "ME", "city" : "LISBON" }, "avgPop" : 3633 }
{ "_id" : { "state" : "NJ", "city" : "BLOOMSBURY" }, "avgPop" : 2111 }
{ "_id" : { "state" : "OK", "city" : "ROFF" }, "avgPop" : 1316 }
{ "_id" : { "state" : "MT", "city" : "DELL" }, "avgPop" : 387 }
{ "_id" : { "state" : "CA", "city" : "REDLANDS" }, "avgPop" : 33368 }
{ "_id" : { "state" : "ME", "city" : "SINCLAIR" }, "avgPop" : 216 }
{ "_id" : { "state" : "TN", "city" : "EAST RIDGE" }, "avgPop" : 20711 }
{ "_id" : { "state" : "KS", "city" : "INDEPENDENCE" }, "avgPop" : 13892 }
{ "_id" : { "state" : "CA", "city" : "CANYON LAKE" }, "avgPop" : 12522 }
{ "_id" : { "state" : "ME", "city" : "WEST PARIS" }, "avgPop" : 2140 }
{ "_id" : { "state" : "MS", "city" : "KILMICHAEL" }, "avgPop" : 2351 }
{ "_id" : { "state" : "MA", "city" : "TRURO" }, "avgPop" : 739 }
Type "it" for more
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY> db.zipcodes.aggregate([{$group: {_id:{state:"$state",city:"$city"}, avgPop:{$avg:"$pop"}}}, {$limit:3 }]);
{ "_id" : { "state" : "NY", "city" : "DORMANSVILLE" }, "avgPop" : 465 }
{ "_id" : { "state" : "TN", "city" : "JEFFERSON CITY" }, "avgPop" : 9438 }
{ "_id" : { "state" : "LA", "city" : "JAMESTOWN" }, "avgPop" : 380 }
MongoDB Enterprise atlas-14bpr7-shard-0:PRIMARY>

```