MongoDB_Lab2

Answer Part1

1. mongoimport --db iti --collection zips --file "C:\Users\Kimo Store\Desktop\MongoDB\Day2\zips.json"

```
C:\Program Files\MongoDB\Server\6.0\bin>mongoimport --db iti --collection zips --file "C:\Users\Kimo Store\Desktop\MongoDB\Day2\zips.json"
2023-02-26T02:27:12.768+0200    connected to: mongodb://localhost/
2023-02-26T02:27:15.055+0200    29353 document(s) imported successfully. 0 document(s) failed to import.

C:\Program Files\MongoDB\Server\6.0\bin>
```

2. db.zips.find({state: "NY"})

```
iti> db.zips.find({state:"NY"})
[
  {
    _id: '06390',
    city: 'FISHERS ISLAND',
    loc: [ -72.017834, 41.263934 ],
    pop: 329,
    state: 'NY'
  },
  {
    _id: '10001',
    city: 'NEW YORK',
    loc: [ -73.996705, 40.74838 ],
    pop: 18913,
    state: 'NY'
  },
  {
    _id: '10002',
    city: 'NEW YORK',
    loc: [ -73.987681, 40.715231 ],
    pop: 84143,
    state: 'NY'
  },
  {
    _id: '10006',
    city: 'NEW YORK',
    loc: [ -74.013474, 40.708451 ],
    pop: 119,
    state: 'NY'
  },
  {
    _id: '10007',
    city: 'NEW YORK',
    loc: [ -74.007022, 40.713905 ],
    pop: 3374,
    state: 'NY'
  },
  {
    _id: '10009',
    city: 'NEW YORK',
    loc: [ -73.979591, 40.726188 ],
    pop: 57426,
    state: 'NY'
  },
```

```
    _id: '10017',
    city: 'NEW YORK',
    loc: [ -73.970661, 40.75172 ],
    pop: 12465,
    state: 'NY'
  },
  {
    _id: '10003',
    city: 'NEW YORK',
    loc: [ -73.989223, 40.731253 ],
    pop: 51224,
    state: 'NY'
  },
  {
    _id: '10005',
    city: 'NEW YORK',
    loc: [ -74.008344, 40.705649 ],
    pop: 202,
    state: 'NY'
  },
  {
    _id: '10019',
    city: 'NEW YORK',
    loc: [ -73.985834, 40.765069 ],
    pop: 36602,
    state: 'NY'
  },
  {
    _id: '10023',
    city: 'NEW YORK',
    loc: [ -73.982652, 40.77638 ],
    pop: 57385,
    state: 'NY'
  },
  {
    _id: '10022',
    city: 'NEW YORK',
    loc: [ -73.965703, 40.757091 ],
    pop: 31870,
    state: 'NY'
  },
  {
    _id: '10024',
    city: 'NEW YORK',
    loc: [ -73.976385, 40.786446 ],
    pop: 65141,
    state: 'NY'
  }
]
Type "it" for more
```

3. db.zips.aggregate({$match: {pop:{$gte:1000}}})

```
iti> db.zips.aggregate( { $match: { pop:{$gte:1000}} })
[
  {
    _id: '01011',
    city: 'CHESTER',
    loc: [ -72.988761, 42.279421 ],
    pop: 1688,
    state: 'MA'
  },
  {
    _id: '01013',
    city: 'CHICOPEE',
    loc: [ -72.607962, 42.162046 ],
    pop: 23396,
    state: 'MA'
  },
  {
    _id: '01020',
    city: 'CHICOPEE',
    loc: [ -72.576142, 42.176443 ],
    pop: 31495,
    state: 'MA'
  },
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01005',
    city: 'BARRE',
    loc: [ -72.108354, 42.409698 ],
    pop: 4546,
    state: 'MA'
  },
  {
    _id: '01001',
    city: 'AGAWAM',
    loc: [ -72.622739, 42.070206 ],
    pop: 15338,
    state: 'MA'
  },
  {
    _id: '01022',
    city: 'WESTOVER AFB',
    loc: [ -72.558657, 42.196672 ],
    pop: 1764,
    state: 'MA'
```

```
  },
  {
    _id: '01002',
    city: 'CUSHMAN',
    loc: [ -72.51565, 42.377017 ],
    pop: 36963,
    state: 'MA'
  },
  {
    _id: '01010',
    city: 'BRIMFIELD',
    loc: [ -72.188455, 42.116543 ],
    pop: 3706,
    state: 'MA'
  },
  {
    _id: '01038',
    city: 'HATFIELD',
    loc: [ -72.616735, 42.38439 ],
    pop: 3184,
    state: 'MA'
  },
  {
    _id: '01036',
    city: 'HAMPDEN',
    loc: [ -72.431823, 42.064756 ],
    pop: 4709,
    state: 'MA'
  },
  {
    _id: '01039',
    city: 'HAYDENVILLE',
    loc: [ -72.703178, 42.381799 ],
    pop: 1387,
    state: 'MA'
  },
  {
    _id: '01040',
    city: 'HOLYOKE',
    loc: [ -72.626193, 42.202007 ],
    pop: 43704,
    state: 'MA'
  }
]
Type "it" for more
iti>
```

4. db.zips.aggregate({ $addFields: { check: false }})
   db.zips.aggregate([{ $match: {state:"PA", state:"VA"} }, { $addFields: { check:true } }])

```
iti> db.zips.aggregate({ $addFields: { check: false }})
[
  {
    _id: '01011',
    city: 'CHESTER',
    loc: [ -72.988761, 42.279421 ],
    pop: 1688,
    state: 'MA',
    check: false
  },
  {
    _id: '01012',
    city: 'CHESTERFIELD',
    loc: [ -72.833309, 42.38167 ],
    pop: 177,
    state: 'MA',
    check: false
  },
  {
    _id: '01013',
    city: 'CHICOPEE',
    loc: [ -72.607962, 42.162046 ],
    pop: 23396,
    state: 'MA',
    check: false
  },
  {
    _id: '01020',
    city: 'CHICOPEE',
    loc: [ -72.576142, 42.176443 ],
    pop: 31495,
    state: 'MA',
    check: false
  },
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA',
    check: false
  },
  {
    _id: '01005',
    city: 'BARRE',
    loc: [ -72.108354, 42.409698 ],
    pop: 4546,
    state: 'MA',
```

```
iti> db.zips.aggregate([ { $match: {state:"PA", state:"VA"} }, { $addFields: { check:true } }])
[
  {
    _id: '22002',
    city: 'AMISSVILLE',
    loc: [ -78.038053, 38.710055 ],
    pop: 1581,
    state: 'VA',
    check: true
  },
  {
    _id: '22003',
    city: 'ANNANDALE',
    loc: [ -77.214245, 38.830699 ],
    pop: 50054,
    state: 'VA',
    check: true
  },
  {
    _id: '22010',
    city: 'ARCOLA',
    loc: [ -77.538721, 38.973626 ],
    pop: 61,
    state: 'VA',
    check: true
  },
  {
    _id: '22011',
    city: 'ASHBURN',
    loc: [ -77.480612, 39.039918 ],
    pop: 3979,
    state: 'VA',
    check: true
  },
  {
    _id: '22001',
    city: 'ALDIE',
    loc: [ -77.602281, 38.957878 ],
    pop: 1574,
    state: 'VA',
    check: true
  },
```

5. db.zips.aggregate([{$match: {loc: { $gt: 55, $lt: 65 } }},{ $project: { _id: 0, pop: 1 } }])

```
iti> db.zips.aggregate( [{$match: {loc: { $gt: 55, $lt: 65 } }},{ $project: { _id: 0, pop: 1 } }])
[   pop: 13367,
  { pop: 14436 }, { pop: 7979 },
  { pop: 32383 }, { pop: 7907 },
  { pop: 20128 }, { pop: 29857 },
  { pop: 17094 }, { pop: 12534 },
  { pop: 15891 }, { pop: 15192 },
  { pop: 18356 }, { pop: 119 },
  { pop: 481 },   { pop: 285 },4 ],
  { pop: 1186 }, { pop: 185 },
  { pop: 1698 }, { pop: 296 },
  { pop: 188 },  { pop: 186 }
] },
Type "it" for more
iti>
```

6. db.zips.createIndex({ state: 1 })
   db.zips.getIndexes()

```
iti> db.zips.createIndex({ state: 1 })
state_1
iti> db.zips.getIndexes()
[
  { v: 2, key: { _id: 1 }, name: '_id_' },
  { v: 2, key: { state: 1 }, name: 'state_1' }
]
iti>
```

7. db.zips.updateMany({state:{$nin:["AK","NY"]}},{$inc:{pop:0.2}})

```
iti> db.zips.updateMany({state:{$nin:["AK","NY"]}},{$inc:{pop:0.2}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 27563,
  modifiedCount: 27563,
  upsertedCount: 0
}
```

8. db.zips.updateOne({loc:{$lt:-71}, state:{$nin:["MA"]},
   pop:{$lt:200}},{$set:{pop:0}})

```
iti> db.zips.updateOne({loc:{$lt:-71}, state:{$nin:["MA"]}, pop:{$lt:200}},{$set:{pop:0}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
iti>
```

9. db.zips.updateMany({}, {$rename:{"city":"country"}})

```
iti> db.zips.updateMany({}, {$rename:{"city":"country"}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 29353,
  modifiedCount: 29353,
  upsertedCount: 0
}
iti>
```

Answer Part2

1. db.zips.aggregate([{$match:{state:{$in:["PA","KA"]}}},
   {$group:{sum_pop:{$sum:"$pop"},_id:0}}])

```
iti> db.zips.aggregate([{$match:{state:{$in:["PA","KA"]}}}, {$group:{sum_pop:{$sum:"$pop"},_id:0}}])
[ { _id: 0, sum_pop: 11882226.2 } ]
iti>
```

2. db.zips.find({state:{$nin:["PA","KA"]}}).limit(5)

```
iti> db.zips.find({state:{$nin:["PA","KA"]}}).limit(5)
[
  {
    _id: '99501',
    loc: [ -149.876077, 61.211571 ],
    pop: 14436,
    state: 'AK',
    country: 'ANCHORAGE'
  },
  {
    _id: '99505',
    loc: [ -149.675454, 61.275256 ],
    pop: 7979,
    state: 'AK',
    country: 'FORT RICHARDSON'
  },
  {
    _id: '99504',
    loc: [ -149.74467, 61.203696 ],
    pop: 32383,
    state: 'AK',
    country: 'ANCHORAGE'
  },
  {
    _id: '99506',
    loc: [ -149.812667, 61.251531 ],
    pop: 7907,
    state: 'AK',
    country: 'ELMENDORF AFB'
  },
  {
    _id: '99507',
    loc: [ -149.828912, 61.153543 ],
    pop: 20128,
    state: 'AK',
    country: 'ANCHORAGE'
  }
]
iti>
```

3. db.zips.aggregate([{$match:{state:{$in:["AK"]},loc:{$gt:55,$lt:65}}},{$gro
   up:{sum_pop:{$sum:"$pop"}, id:1}}])

```
iti> db.zips.aggregate([{$match:{state:{$in:["AK"]},loc:{$gt:55,$lt:65}}},{$group:{sum_pop:{$sum:"$pop"},_id:1}}])
[ { _id: 1, sum_pop: 540788 } ]
iti>
```

4. db.zips.aggregate([{ $match: { state: {$in:["AK","PA"]} } }, { $sort: { pop:
   1 } }]).skip(7)

```
iti> db.zips.aggregate([ { $match: { state: {$in:["AK","PA"]} } }, { $sort: { pop: 1 } }]).skip(7)
[
  {
    _id: '99770',
    loc: [ -158.534287, 65.713537 ],
    pop: 0,
    state: 'AK',
    country: 'SELAWIK'
  },
  {
    _id: '99773',
    loc: [ -157.613496, 66.958141 ],
    pop: 0,
    state: 'AK',
    country: 'SHUNGNAK'
  },
  {
    _id: '15744',
    loc: [ -79.093987, 40.921432 ],
    pop: 0.4,
    state: 'PA',
    country: 'HAMILTON'
  },
  {
    _id: '19113',
    loc: [ -75.275196, 39.864998 ],
    pop: 0.4,
    state: 'PA',
    country: 'PHILADELPHIA'
  },
  {
    _id: '99575',
    loc: [ -158.002483, 61.818072 ],
    pop: 1,
    state: 'AK',
    country: 'CROOKED CREEK'
  },
  {
    _id: '99692',
    loc: [ -167.510656, 53.362757 ],
    pop: 3,
    state: 'AK',
    country: 'DUTCH HARBOR'
  },
  {
    _id: '99651',
    loc: [ -162.043201, 58.63364 ],
    pop: 4,
    state: 'AK',
```

5. db.zips.aggregate({$group:{small_pop:{$min:"$pop"},great_pop:{$max:"$pop"}, _id:"$state"}},{$out:"mypop"})

```
iti> db.zips.aggregate({$group:{small_pop:{$min:"$pop"},great_pop:{$max:"$pop"},_id:"$state"}},{$out:"mypop"})

iti> db.mypop.find()
[
  { _id: 'NJ', small_pop: 17.4, great_pop: 69646.4 },
  { _id: 'MN', small_pop: 0.4, great_pop: 51421.399999999994 },
  {
    _id: 'OK',
    small_pop: 8.399999999999999,
    great_pop: 45542.399999999994
  },
  { _id: 'WY', small_pop: 6.4, great_pop: 33107.399999999994 },
  { _id: 'HI', small_pop: 0.4, great_pop: 62915.399999999994 },
  {
    _id: 'TN',
    small_pop: 2.4000000000000004,
    great_pop: 60508.399999999994
  },
  { _id: 'NE', small_pop: 5.4, great_pop: 35325.399999999994 },
  {
    _id: 'AZ',
    small_pop: 2.4000000000000004,
    great_pop: 57131.399999999994
  },
  { _id: 'MO', small_pop: 0.4, great_pop: 54994.399999999994 },
  { _id: 'WV', small_pop: 0.4, great_pop: 70185.4 },
  { _id: 'IN', small_pop: 75.4, great_pop: 56543.399999999994 },
  { _id: 'MI', small_pop: 0.4, great_pop: 84712.4 },
  {
    _id: 'ND',
    small_pop: 12.399999999999999,
    great_pop: 42195.399999999994
  },
  { _id: 'NH', small_pop: 27.4, great_pop: 41438.399999999994 },
  { _id: 'KY', small_pop: 0.4, great_pop: 46563.399999999994 },
  { _id: 'NC', small_pop: 0.4, great_pop: 69179.4 },
  { _id: 'TX', small_pop: 0.4, great_pop: 79463.4 },
  { _id: 'CO', small_pop: 0.4, great_pop: 59418.399999999994 },
  {
    _id: 'UT',
    small_pop: 9.399999999999999,
    great_pop: 55999.399999999994
  },
  { _id: 'SC', small_pop: 0.4, great_pop: 66990.4 }
]
Type "it" for more
```

6. db.zips.aggregate({$group:{avg:{$avg:"$pop"}, _id:"$state"}})

```
iti> db.zips.aggregate({$group:{avg:{$avg:"$pop"},_id:"$state"}})
[
  { _id: 'MN', avg: 4958.42947845805 },
  { _id: 'LA', avg: 9090.044396551722 },
  { _id: 'OK', avg: 5368.292491467577 },
  { _id: 'WY', avg: 3239.885714285714 },
  { _id: 'TN', avg: 8379.192096219931 },
  { _id: 'CA', avg: 19627.636147757254 },
  { _id: 'HI', avg: 13853.2625 },
  { _id: 'NE', avg: 2749.7710801393728 },
  { _id: 'AZ', avg: 13575.31851851852 },
  { _id: 'MO', avg: 5141.896981891347 },
  { _id: 'WV', avg: 2733.8542682926827 },
  { _id: 'ND', avg: 1632.8092071611254 },
  { _id: 'IN', avg: 8201.784615384617 },
  { _id: 'NH', avg: 5088.711926605504 },
  { _id: 'MI', avg: 10611.469634703197 },
  { _id: 'KY', avg: 4543.6435105067985 },
  { _id: 'UT', avg: 8404.546341463414 },
  { _id: 'NC', avg: 9402.721985815602 },
  { _id: 'TX', avg: 10164.733333333332 },
  { _id: 'CO', avg: 7956.329951690822 }
]
Type "it" for more
iti>
```

7. db.zips.aggregate({$sort:{stage:1, city:1}})

```
iti> db.zips.aggregate({$sort:{stage:1, city:1}})
[
  {
    _id: '01011',
    loc: [ -72.988761, 42.279421 ],
    pop: 1688.4,
    state: 'MA',
    country: 'CHESTER'
  },
  {
    _id: '01012',
    loc: [ -72.833309, 42.38167 ],
    pop: 177.39999999999998,
    state: 'MA',
    country: 'CHESTERFIELD'
  },
  {
    _id: '01013',
    loc: [ -72.607962, 42.162046 ],
    pop: 23396.4,
    state: 'MA',
    country: 'CHICOPEE'
  },
  {
    _id: '01020',
    loc: [ -72.576142, 42.176443 ],
    pop: 31495.4,
    state: 'MA',
    country: 'CHICOPEE'
  },
  {
    _id: '01026',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484.4,
    state: 'MA',
    country: 'CUMMINGTON'
  },
  {
    _id: '01005',
    loc: [ -72.108354, 42.409698 ],
    pop: 4546.4,
    state: 'MA',
    country: 'BARRE'
  },
  {
```

8. db.zips.aggregate({$sort:{stage:-1, city:-1}})

```
iti> db.zips.aggregate({$sort:{stage:-1, city:-1}})
[
  {
    _id: '01011',
    loc: [ -72.988761, 42.279421 ],
    pop: 1688.4,
    state: 'MA',
    country: 'CHESTER'
  },
  {
    _id: '01012',
    loc: [ -72.833309, 42.38167 ],
    pop: 177.39999999999998,
    state: 'MA',
    country: 'CHESTERFIELD'
  },
  {
    _id: '01013',
    loc: [ -72.607962, 42.162046 ],
    pop: 23396.4,
    state: 'MA',
    country: 'CHICOPEE'
  },
  {
    _id: '01020',
    loc: [ -72.576142, 42.176443 ],
    pop: 31495.4,
    state: 'MA',
    country: 'CHICOPEE'
  },
  {
    _id: '01026',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484.4,
    state: 'MA',
    country: 'CUMMINGTON'
  },
  {
    _id: '01005',
    loc: [ -72.108354, 42.409698 ],
    pop: 4546.4,
    state: 'MA',
    country: 'BARRE'
  },
```

9. db.zips.aggregate([{ $match: { state: {$in:["CA","NY"]},pop:{$gt:25000}}}, { $group: { avg:{$avg:"$pop"}, _id:1 } }])

```
iti>     db.zips.aggregate([ { $match: { state: {$in:["CA","NY"]},pop:{$gt:25000}}}, { $group: { avg:{$avg:"$pop"},_id:1 } }])
[ { _id: 1, avg: 42428.59131545338 } ]
iti>
```

10. db.zips.aggregate({ $group: { avg:{$avg:"$pop"},_id:"$state" } })

```
iti>     db.zips.aggregate({ $group: { avg:{$avg:"$pop"},_id:"$state" } })
[
  { _id: 'OH', avg: 10771.519165839127 },
  { _id: 'SD', avg: 1811.3296874999999 },
  { _id: 'LA', avg: 9090.044396551722 },
  { _id: 'TN', avg: 8379.192096219931 },
  { _id: 'OK', avg: 5368.292491467577 },
  { _id: 'WY', avg: 3239.885714285714 },
  { _id: 'WV', avg: 2733.8542682926827 },
  { _id: 'MO', avg: 5141.896981891347 },
  { _id: 'NE', avg: 2749.7710801393728 },
  { _id: 'KY', avg: 4543.6435105067985 },
  { _id: 'AZ', avg: 13575.31851851852 },
  { _id: 'NH', avg: 5088.711926605504 },
  { _id: 'IN', avg: 8201.784615384617 },
  { _id: 'MI', avg: 10611.469634703197 },
  { _id: 'ND', avg: 1632.8092071611254 },
  { _id: 'AL', avg: 7126.655731922399 },
  { _id: 'WA', avg: 10055.548760330577 },
  { _id: 'SC', avg: 9962.408571428572 },
  { _id: 'NM', avg: 5489.780434782609 },
  { _id: 'NC', avg: 9402.721985815602 }
]
Type "it" for more
iti>
```