```
sampledata> db.samplecollection.find({})
[
  {
    _id: '01007',
    city: 'BELCHERTOWN',
    loc: [ -72.410953, 42.275103 ],
    pop: 10579,
    state: 'MA'
  },
  {
    _id: '01005',
    city: 'BARRE',
    loc: [ -72.108354, 42.409698 ],
    pop: 4546,
    state: 'MA'
  },
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
  {
```

```
sampledata> db.samplecollection.find({ pop: { "$lte": 3000 } }
... )
[
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    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: '01034',
    city: 'TOLLAND',
    loc: [ -72.908793, 42.070234 ],
    pop: 1652,
    state: 'MA'
  },
  {
    _id: '01039',
    city: 'HAYDENVILLE',
    loc: [ -72.703178, 42.381799 ],
    pop: 1387,
    state: 'MA'
  },
```

```
]
Type "it" for more
sampledata> db.samplecollection.find({ pop: { "$lt": 10000 } } )
[
  {
    _id: '01005',
    city: 'BARRE',
    loc: [ -72.108354, 42.409698 ],
    pop: 4546,
    state: 'MA'
  },
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01010',
    city: 'BRIMFIELD',
    loc: [ -72.188455, 42.116543 ],
    pop: 3706,
    state: 'MA'
  },
  {
    _id: '01031',
    city: 'GILBERTVILLE',
    loc: [ -72.198585, 42.332194 ],
    pop: 2385,
    state: 'MA'
  },
```

```
Type "it" for more
sampledata> db.samplecollection.find({ pop: { "$lt": 10000,"$gt":1000 } } )
[
  {
    _id: '01005',
    city: 'BARRE',
    loc: [ -72.108354, 42.409698 ],
    pop: 4546,
    state: 'MA'
  },
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01010',
    city: 'BRIMFIELD',
    loc: [ -72.188455, 42.116543 ],
    pop: 3706,
    state: 'MA'
  },
  {
    _id: '01031',
    city: 'GILBERTVILLE',
    loc: [ -72.198585, 42.332194 ],
    pop: 2385,
    state: 'MA'
  },
```

```
sampledata> db.samplecollection.find({ "city": { "$eq": "PALMER" }})
[
  {
    _id: '01069',
    city: 'PALMER',
    loc: [ -72.328785, 42.176233 ],
    pop: 9778,
    state: 'MA'
  },
  {
    _id: '37365',
    city: 'PALMER',
    loc: [ -85.564272, 35.374062 ],
    pop: 1685,
    state: 'TN'
  },
  {
    _id: '50571',
    city: 'PALMER',
    loc: [ -94.543155, 42.641871 ],
    pop: 1119,
    state: 'IA'
  },
  {
    _id: '66962',
    city: 'PALMER',
    loc: [ -97.112214, 39.619165 ],
    pop: 276,
    state: 'KS'
```

```
]
sampledata>  db.samplecollection.find({ "city": { "$eq": "PALMER" }, "_id": { "$gt":'01000' } },{"city":1,"_id":0} )
[
  { city: 'PALMER' },
  { city: 'PALMER' },
  { city: 'PALMER' },
  { city: 'PALMER' },
  { city: 'PALMER' },
  { city: 'PALMER' }
]
sampledata>  db.samplecollection.find({ "city": { "$eq": "PALMER" }, "_id": { "$gt":'01000' } },{"city":1,"_id":1} )
[
  { _id: '01069', city: 'PALMER' },
  { _id: '37365', city: 'PALMER' },
  { _id: '50571', city: 'PALMER' },
  { _id: '66962', city: 'PALMER' },
  { _id: '68864', city: 'PALMER' },
  { _id: '75152', city: 'PALMER' }
]
```

```
sampledata> db.samplecollection.count({"status": {"$exists": true}})
DeprecationWarning: Collection.count() is deprecated. Use countDocuments or estimatedDocumentCount.
0
sampledata> db.samplecollection.count({"state": {"$exists": true}})
29353
sampledata> db.samplecollection.count({"city": {"$exists": true}})
29353
sampledata> db.samplecollection.count({"state": {"$exists": false}})
0
```

```
sampledata> db.samplecollection.find({"city": {"$ne": "PALMER"}},
...       {"_id":1, "city":1})
[
  { _id: '01007', city: 'BELCHERTOWN' },
  { _id: '01005', city: 'BARRE' },
  { _id: '01026', city: 'CUMMINGTON' },
  { _id: '01010', city: 'BRIMFIELD' },
  { _id: '01028', city: 'EAST LONGMEADOW' },
  { _id: '01030', city: 'FEEDING HILLS' },
  { _id: '01031', city: 'GILBERTVILLE' },
  { _id: '01027', city: 'MOUNT TOM' },
  { _id: '01032', city: 'GOSHEN' },
  { _id: '01033', city: 'GRANBY' },
  { _id: '01034', city: 'TOLLAND' },
  { _id: '01035', city: 'HADLEY' },
  { _id: '01036', city: 'HAMPDEN' },
  { _id: '01038', city: 'HATFIELD' },
  { _id: '01039', city: 'HAYDENVILLE' },
  { _id: '01040', city: 'HOLYOKE' },
  { _id: '01050', city: 'HUNTINGTON' },
  { _id: '01011', city: 'CHESTER' },
  { _id: '01008', city: 'BLANDFORD' },
  { _id: '01002', city: 'CUSHMAN' }
]
```

```
sampledata>  db.samplecollection.find({"city":{"$type":"string"}}).pretty()
[
  {
    _id: '01007',
    city: 'BELCHERTOWN',
    loc: [ -72.410953, 42.275103 ],
    pop: 10579,
    state: 'MA'
  },
  {
    _id: '01005',
    city: 'BARRE',
    loc: [ -72.108354, 42.409698 ],
    pop: 4546,
    state: 'MA'
  },
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
```

```
MongoServerError[BadValue]: unknown operator: $city
sampledata> db.samplecollection.find({ "city": { "$in": ["PALMER", "MUMBAI", "DUBAI", "PUNE"] } }, { "_id": 1, "city"
: 1 })
[
  { _id: '01069', city: 'PALMER' },
  { _id: '37365', city: 'PALMER' },
  { _id: '50571', city: 'PALMER' },
  { _id: '66962', city: 'PALMER' },
  { _id: '68864', city: 'PALMER' },
  { _id: '75152', city: 'PALMER' }
]
```

```
sampledata> db.samplecollection.find({ "$or": [ { "pop": { "$gt": 10000 } }, { "_id": { "$gt": '01000' } }] }, { "_id
": 1, "city": 1, "pop": 1 })
[
  { _id: '01007', city: 'BELCHERTOWN', pop: 10579 },
  { _id: '01005', city: 'BARRE', pop: 4546 },
  { _id: '01026', city: 'CUMMINGTON', pop: 1484 },
  { _id: '01010', city: 'BRIMFIELD', pop: 3706 },
  { _id: '01028', city: 'EAST LONGMEADOW', pop: 13367 },
  { _id: '01030', city: 'FEEDING HILLS', pop: 11985 },
  { _id: '01031', city: 'GILBERTVILLE', pop: 2385 },
  { _id: '01027', city: 'MOUNT TOM', pop: 16864 },
  { _id: '01032', city: 'GOSHEN', pop: 122 },
  { _id: '01033', city: 'GRANBY', pop: 5526 },
  { _id: '01034', city: 'TOLLAND', pop: 1652 },
  { _id: '01035', city: 'HADLEY', pop: 4231 },
  { _id: '01036', city: 'HAMPDEN', pop: 4709 },
  { _id: '01038', city: 'HATFIELD', pop: 3184 },
  { _id: '01039', city: 'HAYDENVILLE', pop: 1387 },
  { _id: '01040', city: 'HOLYOKE', pop: 43704 },
  { _id: '01050', city: 'HUNTINGTON', pop: 2084 },
  { _id: '01011', city: 'CHESTER', pop: 1688 },
  { _id: '01008', city: 'BLANDFORD', pop: 1240 },
  { _id: '01002', city: 'CUSHMAN', pop: 36963 }
]
Type "it" for more
```

```
]
Type "it" for more
sampledata> db.samplecollection.find({ "$and": [ { "pop": { "$gt": 10000 } }, { "_id": { "$gt": '01000' } }] }, { "_id": 1, "city": 1, "pop": 1 })
[
  { _id: '01001', city: 'AGAWAM', pop: 15338 },
  { _id: '01002', city: 'CUSHMAN', pop: 36963 },
  { _id: '01007', city: 'BELCHERTOWN', pop: 10579 },
  { _id: '01013', city: 'CHICOPEE', pop: 23396 },
  { _id: '01020', city: 'CHICOPEE', pop: 31495 },
  { _id: '01027', city: 'MOUNT TOM', pop: 16864 },
  { _id: '01028', city: 'EAST LONGMEADOW', pop: 13367 },
  { _id: '01030', city: 'FEEDING HILLS', pop: 11985 },
  { _id: '01040', city: 'HOLYOKE', pop: 43704 },
  { _id: '01056', city: 'LUDLOW', pop: 18820 },
  { _id: '01060', city: 'FLORENCE', pop: 27939 },
  { _id: '01075', city: 'SOUTH HADLEY', pop: 16699 },
```

```
sampledata> db.samplecollection.find({"loc": {"$size": 2}},
...        {"_id": 1, "city": 1, "pop": 1})
[
  { _id: '01007', city: 'BELCHERTOWN', pop: 10579 },
  { _id: '01005', city: 'BARRE', pop: 4546 },
  { _id: '01026', city: 'CUMMINGTON', pop: 1484 },
  { _id: '01010', city: 'BRIMFIELD', pop: 3706 },
  { _id: '01028', city: 'EAST LONGMEADOW', pop: 13367 },
  { _id: '01030', city: 'FEEDING HILLS', pop: 11985 },
  { _id: '01031', city: 'GILBERTVILLE', pop: 2385 },
  { _id: '01027', city: 'MOUNT TOM', pop: 16864 },
  { _id: '01032', city: 'GOSHEN', pop: 122 },
  { _id: '01033', city: 'GRANBY', pop: 5526 },
  { _id: '01034', city: 'TOLLAND', pop: 1652 },
  { _id: '01035', city: 'HADLEY', pop: 4231 },
  { _id: '01036', city: 'HAMPDEN', pop: 4709 },
  { _id: '01038', city: 'HATFIELD', pop: 3184 },
  { _id: '01039', city: 'HAYDENVILLE', pop: 1387 },
  { _id: '01040', city: 'HOLYOKE', pop: 43704 },
  { _id: '01050', city: 'HUNTINGTON', pop: 2084 },
  { _id: '01011', city: 'CHESTER', pop: 1688 },
  { _id: '01008', city: 'BLANDFORD', pop: 1240 },
  { _id: '01002', city: 'CUSHMAN', pop: 36963 }
]
```

AGGREGATE

```
Type "it" for more
sampledata> db.samplecollection.aggregate([
...     {
...         $group: {
...             _id: "$state",
...             cityCount: { $sum: 1 }
...         }
...     }
... ])
[
  { _id: 'NY', cityCount: 1595 },
  { _id: 'NC', cityCount: 705 },
  { _id: 'MS', cityCount: 363 },
  { _id: 'CA', cityCount: 1516 },
  { _id: 'VT', cityCount: 243 },
  { _id: 'WV', cityCount: 656 },
  { _id: 'CO', cityCount: 414 },
  { _id: 'WY', cityCount: 140 },
  { _id: 'NH', cityCount: 218 },
  { _id: 'MT', cityCount: 314 },
  { _id: 'AL', cityCount: 567 },
  { _id: 'AR', cityCount: 578 },
  { _id: 'KS', cityCount: 715 },
  { _id: 'ID', cityCount: 244 },
  { _id: 'AZ', cityCount: 270 },
  { _id: 'HI', cityCount: 80 },
  { _id: 'AK', cityCount: 195 },
  { _id: 'RI', cityCount: 69 },
  { _id: 'CT', cityCount: 263 },
  { _id: 'GA', cityCount: 635 }
]
```

```
sampledata> db.samplecollection.aggregate([{ $match: {pop: { $gt: 0 }}},{$group: {_id: "$state",cityCount: { $sum: 1 }}}])
[
  { _id: 'NY', cityCount: 1592 },
  { _id: 'NC', cityCount: 704 },
  { _id: 'MS', cityCount: 362 },
  { _id: 'CA', cityCount: 1509 },
  { _id: 'VT', cityCount: 242 },
  { _id: 'WV', cityCount: 655 },
  { _id: 'CO', cityCount: 413 },
  { _id: 'WY', cityCount: 140 },
  { _id: 'NH', cityCount: 218 },
  { _id: 'MT', cityCount: 314 },
  { _id: 'AL', cityCount: 566 },
  { _id: 'AR', cityCount: 577 },
  { _id: 'KS', cityCount: 712 },
  { _id: 'ID', cityCount: 243 },
  { _id: 'AZ', cityCount: 270 },
  { _id: 'HI', cityCount: 79 },
  { _id: 'AK', cityCount: 187 },
  { _id: 'RI', cityCount: 69 },
  { _id: 'CT', cityCount: 263 },
  { _id: 'GA', cityCount: 633 }
]
Type "it" for more
```

```
sampledata> db.samplecollection.aggregate([{$match: {pop: { $gt: 0 }}},{$group: {_id: {state: "$state", city: "$city"}, cityCount: { $sum: 1 }}},{$sort: {"_id.state": 1,"_id.city": 1}}])
[
  { _id: { state: 'AK', city: 'AKHIOK' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'AKIACHAK' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'AKIAK' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'AKUTAN' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'ALAKANUK' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'ALEKNAGIK' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'ALLAKAKET' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'AMBLER' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'ANAKTUVUK PASS' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'ANCHORAGE' }, cityCount: 10 },
  { _id: { state: 'AK', city: 'ANDERSON' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'ANGOON' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'ANVIK' }, cityCount: 1 },
```

```
sampledata> db.samplecollection.aggregate([
...     {
...         $group: {
...             _id: {
...                 state: "$state",
...                 city: "$city"
...             },
...             cityCount: { $sum: 1 }
...         }
...     }
... ])
[
  { _id: { state: 'WI', city: 'ROBERTS' }, cityCount: 1 },
  { _id: { state: 'NY', city: 'ASTORIA' }, cityCount: 5 },
  { _id: { state: 'VA', city: 'MEADOWS OF DAN' }, cityCount: 1 },
  { _id: { state: 'SD', city: 'SPENCER' }, cityCount: 1 },
  { _id: { state: 'DE', city: 'MILTON' }, cityCount: 1 },
  { _id: { state: 'OK', city: 'TALALA' }, cityCount: 1 },
  { _id: { state: 'SC', city: 'CLINTON' }, cityCount: 1 },
  { _id: { state: 'PA', city: 'LAKE ARIEL' }, cityCount: 1 },
  { _id: { state: 'WV', city: 'WILDCAT' }, cityCount: 1 },
  { _id: { state: 'FL', city: 'CYPRESS GARDENS' }, cityCount: 1 },
  { _id: { state: 'WI', city: 'JANESVILLE' }, cityCount: 2 },
  { _id: { state: 'AL', city: 'WEOGUFKA' }, cityCount: 1 },
  { _id: { state: 'VA', city: 'SANDY LEVEL' }, cityCount: 1 },
  { _id: { state: 'KY', city: 'PATHFORK' }, cityCount: 1 },
  { _id: { state: 'MI', city: 'CHASSELL' }, cityCount: 1 },
  { _id: { state: 'TX', city: 'JOAQUIN' }, cityCount: 1 },
  { _id: { state: 'OK', city: 'GRACEMONT' }, cityCount: 1 },
  { _id: { state: 'NC', city: 'AYDLETT' }, cityCount: 1 },
  { _id: { state: 'GA', city: 'HULL' }, cityCount: 1 },
  { _id: { state: 'PA', city: 'DARLINGTON' }, cityCount: 1 }
]
Type "it" for more
sampledata>
```

```
sampledata>

sampledata> db.samplecollection.aggregate([{ $unwind:{path:"$loc"}}]).pretty()
[
  {
    _id: '01007',
    city: 'BELCHERTOWN',
    loc: -72.410953,
    pop: 10579,
    state: 'MA'
  },
  {
    _id: '01007',
    city: 'BELCHERTOWN',
    loc: 42.275103,
    pop: 10579,
    state: 'MA'
  },
  {
    _id: '01005',
    city: 'BARRE',
    loc: -72.108354,
    pop: 4546,
    state: 'MA'
  },
```

```
sampledata> db.samplecollection.aggregate([{ $unwind:{path:"$loc"}}]).pretty()
[
  {
    _id: '01007',
    city: 'BELCHERTOWN',
```