Practical-5: Aggregation USING Mangodb

Name: Krishna Shantaram Pinvankar   **Roll No. – L022**

```
C:\Users\Admin>mongoimport --db sampledata --collection samplecollection --file C:\Users\Admin\Krishna\sample.json
2025-01-31T14:43:22.867+0530    connected to: mongodb://localhost/
2025-01-31T14:43:23.402+0530    29353 document(s) imported successfully. 0 document(s) failed to import.
```

```
C:\Users\Admin>mongosh
Current Mongosh Log ID: 679c95a52afb5cc2ba56f1ef
Connecting to:          mongodb://127.0.0.1:27017/?directConnection=true&serverSele
Using MongoDB:          7.0.6
Using Mongosh:          2.1.5
mongosh 2.3.8 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

------
   The server generated these startup warnings when booting
   2025-01-31T07:33:12.247+05:30: Access control is not enabled for the database. R
------
```

```
test> use dbs
switched to db dbs
dbs> show dbs
admin          40.00 KiB
config         72.00 KiB
krish         148.00 KiB
local          88.00 KiB
random         48.00 KiB
sampledata      1.58 MiB
students       40.00 KiB
todoapp        80.00 KiB
userdb          8.00 KiB
dbs> use sampledata
switched to db sampledata
sampledata> show collections
```

```
sampledata> db.samplecollection.find({})
[
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01027',
    city: 'MOUNT TOM',
    loc: [ -72.679921, 42.264319 ],
    pop: 16864,
    state: 'MA'
  },
  {
    _id: '01028',
    city: 'EAST LONGMEADOW',
    loc: [ -72.505565, 42.067203 ],
    pop: 13367,
    state: 'MA'
  },
  {
    _id: '01030',
    city: 'FEEDING HILLS',
    loc: [ -72.675077, 42.07182 ],
    pop: 11985,
    state: 'MA'
  },
  {
```

```
sampledata> db.samplecollection.find({pop: {"$lte": 16864}})
[
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01027',
    city: 'MOUNT TOM',
    loc: [ -72.679921, 42.264319 ],
    pop: 16864,
    state: 'MA'
  },
  {
    _id: '01028',
    city: 'EAST LONGMEADOW',
    loc: [ -72.505565, 42.067203 ],
    pop: 13367,
    state: 'MA'
  },
  {
    _id: '01030',
    city: 'FEEDING HILLS',
    loc: [ -72.675077, 42.07182 ],
    pop: 11985,
    state: 'MA'
  },
```

```
sampledata> db.samplecollection.find({pop: {"$lte": 16864, "$gt": 1000}})
[
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01027',
    city: 'MOUNT TOM',
    loc: [ -72.679921, 42.264319 ],
    pop: 16864,
    state: 'MA'
  },
  {
    _id: '01028',
    city: 'EAST LONGMEADOW',
    loc: [ -72.505565, 42.067203 ],
    pop: 13367,
    state: 'MA'
  },
  {
    _id: '01030',
    city: 'FEEDING HILLS',
    loc: [ -72.675077, 42.07182 ],
    pop: 11985,
    state: 'MA'
  },
  {
    _id: '01022',
    city: 'WESTOVER AFB',
    loc: [ -72.558657, 42.196672 ],
    pop: 1764,
    state: 'MA'
  },
  {
    _id: '01031',
    city: 'GILBERTVILLE',
    loc: [ -72.198585, 42.332194 ],
    pop: 2385,
    state: 'MA'
  },
```

```
Type "it" for more
sampledata> db.samplecollection.find({ "pop": { "$gt": 180 }, "_id": { "$gt": '00008' } }, { "pop": 1, "_id": 1 })
[
  { _id: '01001', pop: 15338 },
  { _id: '01002', pop: 36963 },
  { _id: '01005', pop: 4546 },
  { _id: '01007', pop: 10579 },
  { _id: '01008', pop: 1240 },
  { _id: '01010', pop: 3706 },
  { _id: '01011', pop: 1688 },
  { _id: '01013', pop: 23396 },
  { _id: '01020', pop: 31495 },
  { _id: '01022', pop: 1764 },
  { _id: '01026', pop: 1484 },
  { _id: '01027', pop: 16864 },
  { _id: '01028', pop: 13367 },
  { _id: '01030', pop: 11985 },
  { _id: '01031', pop: 2385 },
  { _id: '01033', pop: 5526 },
  { _id: '01034', pop: 1652 },
  { _id: '01035', pop: 4231 },
  { _id: '01036', pop: 4709 },01 ],
  { _id: '01038', pop: 3184 }
]   state: 'MA'
Type "it" for more
sampledata> _
Type "it" for more
```

```
sampledata> db.samplecollection.find({"city": {"$ne": "HADLEY"}},
...      {"_id":1, "city":1})
[
  { _id: '01026', city: 'CUMMINGTON' },
  { _id: '01027', city: 'MOUNT TOM' },
  { _id: '01028', city: 'EAST LONGMEADOW' },
  { _id: '01030', city: 'FEEDING HILLS' },
  { _id: '01022', city: 'WESTOVER AFB' },
  { _id: '01031', city: 'GILBERTVILLE' },
  { _id: '01032', city: 'GOSHEN' },
  { _id: '01034', city: 'TOLLAND' },
  { _id: '01033', city: 'GRANBY' },
  { _id: '01036', city: 'HAMPDEN' },
  { _id: '01038', city: 'HATFIELD' },
  { _id: '01039', city: 'HAYDENVILLE' },
  { _id: '01040', city: 'HOLYOKE' },
  { _id: '01001', city: 'AGAWAM' },
  { _id: '01002', city: 'CUSHMAN' },
  { _id: '01056', city: 'LUDLOW' },
  { _id: '01057', city: 'MONSON' },
  { _id: '01060', city: 'FLORENCE' },
  { _id: '01010', city: 'BRIMFIELD' },
  { _id: '01068', city: 'OAKHAM' }
]
Type "it" for more
sampledata> _
```

```
]
sampledata> db.samplecollection.find({"city": {"$in": ["HOLYOKE", "GOSHEN", "AGAWAM"]}},{"_id":1, "city":1})
[
  { _id: '01032', city: 'GOSHEN' },
  { _id: '01040', city: 'HOLYOKE' },
  { _id: '01001', city: 'AGAWAM' },
  { _id: '03752', city: 'GOSHEN' },
  { _id: '06756', city: 'GOSHEN' },
  { _id: '10924', city: 'GOSHEN' },
  { _id: '24439', city: 'GOSHEN' },
  { _id: '36035', city: 'GOSHEN' },
  { _id: '40026', city: 'GOSHEN' },
  { _id: '45122', city: 'GOSHEN' },
  { _id: '55749', city: 'HOLYOKE' },
  { _id: '72735', city: 'GOSHEN' },
  { _id: '80734', city: 'HOLYOKE' }
]
sampledata>
```

```
sampledata> db.samplecollection.find({"$and": [{"pop": {"$gt": 850}}, {"city": {"$ne": "ROWE"}}]}, {"_id": 0, "pop": 1, "city": 1})
[
  { city: 'CUMMINGTON', pop: 1484 },
  { city: 'MOUNT TOM', pop: 16864 },
  { city: 'EAST LONGMEADOW', pop: 13367 },
  { city: 'FEEDING HILLS', pop: 11985 },
  { city: 'WESTOVER AFB', pop: 1764 },
  { city: 'GILBERTVILLE', pop: 2385 },
  { city: 'TOLLAND', pop: 1652 },
  { city: 'GRANBY', pop: 5526 },
  { city: 'HADLEY', pop: 4231 },
  { city: 'HAMPDEN', pop: 4709 },
  { city: 'HATFIELD', pop: 3184 },
  { city: 'HAYDENVILLE', pop: 1387 },
  { city: 'HOLYOKE', pop: 43704 },
  { city: 'AGAWAM', pop: 15338 },
  { city: 'CUSHMAN', pop: 36963 },
  { city: 'LUDLOW', pop: 18820 },
  { city: 'MONSON', pop: 8194 },
  { city: 'FLORENCE', pop: 27939 },
  { city: 'BRIMFIELD', pop: 3706 },
  { city: 'OAKHAM', pop: 1503 }
]
Type "it" for more
sampledata>
```

```
sampledata> db.samplecollection.find({"$or": [{"pop": {"$gt": 850}}, {"city": {"$ne": "ROWE"}}]}, {"_id": 0, "pop": 1, "city": 1})
[
  { city: 'CUMMINGTON', pop: 1484 },
  { city: 'MOUNT TOM', pop: 16864 },
  { city: 'EAST LONGMEADOW', pop: 13367 },
  { city: 'FEEDING HILLS', pop: 11985 },
  { city: 'WESTOVER AFB', pop: 1764 },
  { city: 'GILBERTVILLE', pop: 2385 },
  { city: 'GOSHEN', pop: 122 },
  { city: 'TOLLAND', pop: 1652 },
  { city: 'GRANBY', pop: 5526 },
  { city: 'HADLEY', pop: 4231 },
  { city: 'HAMPDEN', pop: 4709 },
  { city: 'HATFIELD', pop: 3184 },
  { city: 'HAYDENVILLE', pop: 1387 },
  { city: 'HOLYOKE', pop: 43704 },
  { city: 'AGAWAM', pop: 15338 },
  { city: 'CUSHMAN', pop: 36963 },
  { city: 'LUDLOW', pop: 18820 },
  { city: 'MONSON', pop: 8194 },
  { city: 'FLORENCE', pop: 27939 },
  { city: 'BRIMFIELD', pop: 3706 }
]
Type "it" for more
```

```
Type "it" for more
sampledata> db.samplecollection.count({"city":{"$exists":true}})
29353
sampledata> db.samplecollection.count({"state":{"$exists":true}})
29353
sampledata> db.samplecollection.count({"status":{"$exists":true}})
0
```

```
sampledata> db.samplecollection.count({"city": null})
0
sampledata> db.samplecollection.find({"city": {"$type": "string"}}).pretty()
[
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: [ -72.905767, 42.435296 ],
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01027',
    city: 'MOUNT TOM',
    loc: [ -72.679921, 42.264319 ],
    pop: 16864,
    state: 'MA'
  },
  {
    _id: '01028',
    city: 'EAST LONGMEADOW',
    loc: [ -72.505565, 42.067203 ],
    pop: 13367,
    state: 'MA'
  },
  {
    _id: '01030',
    city: 'FEEDING HILLS',
    loc: [ -72.675077, 42.07182 ]
```

```
sampledata> db.samplecollection.find({"loc": {"$size": 2}},{"_id": 1,"city": 1})
[
  { _id: '01026', city: 'CUMMINGTON' },
  { _id: '01027', city: 'MOUNT TOM' },
  { _id: '01028', city: 'EAST LONGMEADOW' },
  { _id: '01030', city: 'FEEDING HILLS' },
  { _id: '01022', city: 'WESTOVER AFB' },
  { _id: '01031', city: 'GILBERTVILLE' },
  { _id: '01032', city: 'GOSHEN' },
  { _id: '01034', city: 'TOLLAND' },
  { _id: '01033', city: 'GRANBY' },
  { _id: '01035', city: 'HADLEY' },
  { _id: '01036', city: 'HAMPDEN' },
  { _id: '01038', city: 'HATFIELD' },
  { _id: '01039', city: 'HAYDENVILLE' },
  { _id: '01040', city: 'HOLYOKE' },
  { _id: '01001', city: 'AGAWAM' },
  { _id: '01002', city: 'CUSHMAN' },
  { _id: '01056', city: 'LUDLOW' },
  { _id: '01057', city: 'MONSON' },
  { _id: '01060', city: 'FLORENCE' },
  { _id: '01010', city: 'BRIMFIELD' }
]
Type "it" for more
sampledata> _
```

```
Type "it" for more
...     {
...         $group: {
...             _id: "$state",
...             cityCount: { $sum: 1 }
...         }
...     }
... ])
[
  { _id: 'NV', cityCount: 104 },
  { _id: 'OR', cityCount: 384 },
  { _id: 'WI', cityCount: 716 },
  { _id: 'NJ', cityCount: 540 },
  { _id: 'MT', cityCount: 314 },
  { _id: 'MO', cityCount: 994 },
  { _id: 'IL', cityCount: 1237 },
  { _id: 'NE', cityCount: 574 },
  { _id: 'WA', cityCount: 484 },
  { _id: 'VT', cityCount: 243 },
  { _id: 'DC', cityCount: 24 },
  { _id: 'NH', cityCount: 218 },
  { _id: 'HI', cityCount: 80 },
  { _id: 'ID', cityCount: 244 },
  { _id: 'GA', cityCount: 635 },
  { _id: 'VA', cityCount: 816 },
  { _id: 'AZ', cityCount: 270 },
  { _id: 'FL', cityCount: 804 },
  { _id: 'KY', cityCount: 809 },
  { _id: 'UT', cityCount: 205 }
]
Type "it" for more
sampledata> _
```

```
sampledata> db.samplecollection.aggregate([{ $match: {pop: { $gt: 0 }}},{$group: {_id: "$state",cityCount: { $sum: 1 }}}])
[
  { _id: 'NV', cityCount: 104 },
  { _id: 'OR', cityCount: 381 },
  { _id: 'WI', cityCount: 716 },
  { _id: 'NJ', cityCount: 540 },
  { _id: 'MT', cityCount: 314 },
  { _id: 'MO', cityCount: 991 },
  { _id: 'IL', cityCount: 1235 },
  { _id: 'NE', cityCount: 574 },
  { _id: 'WA', cityCount: 484 },
  { _id: 'VT', cityCount: 242 },
  { _id: 'DC', cityCount: 24 },
  { _id: 'NH', cityCount: 218 },
  { _id: 'HI', cityCount: 79 },
  { _id: 'ID', cityCount: 243 },
  { _id: 'GA', cityCount: 633 },
  { _id: 'VA', cityCount: 815 },
  { _id: 'AZ', cityCount: 270 },
  { _id: 'FL', cityCount: 803 },
  { _id: 'KY', cityCount: 805 },
  { _id: 'UT', cityCount: 205 }
]
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 },
  { _id: { state: 'AK', city: 'ARCTIC VILLAGE' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'ATMAUTLUAK' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'BARROW' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'BEAVER' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'BETTLES FIELD' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'BORDER' }, cityCount: 1 },
  { _id: { state: 'AK', city: 'BREVIG MISSION' }, cityCount: 1 }
]
Type "it" for more
sampledata>
```

```
Type "it" for more
sampledata> db.samplecollection.aggregate([
...     {
...         $unwind: {
...             path: "$loc"
...         }
...     }
... ]).pretty()
[
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: -72.905767,
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01026',
    city: 'CUMMINGTON',
    loc: 42.435296,
    pop: 1484,
    state: 'MA'
  },
  {
    _id: '01027',
    city: 'MOUNT TOM',
    loc: -72.679921,
    pop: 16864,
    state: 'MA'
  },
  {
    _id: '01027',
    city: 'MOUNT TOM',
    loc: 42.264319,
    pop: 16864,
    state: 'MA'
  },
  {
```

```
    }
]
Type "it" for more
...    {
...        $group: {
...            _id: {
...                state: "$state",
...                city: "$city"
...            },
...            cityCount: { $sum: 1 }
...        }
...    }
... ])
[
  { _id: { state: 'KY', city: 'CARRSVILLE' }, cityCount: 1 },
  { _id: { state: 'MN', city: 'PARKVILLE' }, cityCount: 1 },
  { _id: { state: 'IL', city: 'CERRO GORDO' }, cityCount: 1 },
  { _id: { state: 'OR', city: 'YACHATS' }, cityCount: 1 },
  { _id: { state: 'IN', city: 'COLUMBIA CITY' }, cityCount: 1 },
  { _id: { state: 'IA', city: 'STEAMBOAT ROCK' }, cityCount: 1 },
  { _id: { state: 'TX', city: 'JERSEY VILLAGE' }, cityCount: 1 },
  { _id: { state: 'MO', city: 'FRIEDHEIM' }, cityCount: 1 },
  { _id: { state: 'UT', city: 'SNOWVILLE' }, cityCount: 1 },
  { _id: { state: 'MN', city: 'ROTHSAY' }, cityCount: 1 },
  { _id: { state: 'MT', city: 'SHELBY' }, cityCount: 1 },
  { _id: { state: 'MO', city: 'ASH GROVE' }, cityCount: 1 },
  { _id: { state: 'RI', city: 'EAST GREENWICH' }, cityCount: 1 },
  { _id: { state: 'NJ', city: 'SUSSEX' }, cityCount: 1 },
  { _id: { state: 'PA', city: 'GRATZ' }, cityCount: 1 },
  { _id: { state: 'PA', city: 'GEORGE SCHOOL' }, cityCount: 1 },
  { _id: { state: 'WI', city: 'CALEDONIA' }, cityCount: 1 },
  { _id: { state: 'NM', city: 'LEDOUX' }, cityCount: 1 },
  { _id: { state: 'CA', city: 'DIAMOND BAR' }, cityCount: 2 },
  { _id: { state: 'WV', city: 'MILAM' }, cityCount: 1 }
]
Type "it" for more
sampledata>
```