MongoDB:

Queries:

Dataset loading

```
hduser@abhinav:~$ cd MongoDB/
hduser@abhinav:~/MongoDB$ ls
airlineDelay.csv
hduser@abhinav:~/MongoDB$ mongoimport -d userDB -c delayData --type csv --file airlineDelay.csv --headerline
2022-04-18T19:12:55.282+0530    connected to: localhost
2022-04-18T19:12:58.272+0530    [##########...........] userDB.delayData    13.8MB/29.4MB (46.9%)
2022-04-18T19:13:01.272+0530    [##################....] userDB.delayData    25.6MB/29.4MB (87.0%)
2022-04-18T19:13:02.237+0530    [####################] userDB.delayData     29.4MB/29.4MB (100.0%)
2022-04-18T19:13:02.237+0530    imported 173657 documents
hduser@abhinav:~/MongoDB$
```

-
```
> db.delayData.count()
```
- `173657`

1. **Find the airports that which flights count in between 500 and 1000**
- **db.delayData.find({arr_flights : {$lt :1000, $gt : 500}})**
- **To find one document:**

```
db.delayData.findOne({arr_flights : {$lt :1000, $gt : 500}})
```

```
> db.delayData.findOne({arr_flights : {$lt :1000, $gt : 500}})
{
        "_id" : ObjectId("625d6adf78e0b10c9e8d4055"),
        "year" : 2003,
        "month" : 6,
        "carrier" : "AA",
        "carrier_name" : "American Airlines Inc.",
        "airport" : "ATL",
        "airport_name" : "Atlanta, GA: Hartsfield-Jackson Atlanta International",
        "arr_flights" : 752,
        "arr_del15" : 186,
        "carrier_ct" : 33.99,
        "weather_ct" : 27.82,
        "nas_ct" : 104.76,
        "security_ct" : 1.9,
        "late_aircraft_ct" : 17.53,
        "arr_cancelled" : 5,
        "arr_diverted" : 0,
        "arr_delay" : 8314,
        "carrier_delay" : 1367,
        "weather_delay" : 1722,
        "nas_delay" : 3817,
        "security_delay" : 139,
        "late_aircraft_delay" : 1269,
        "" : ""
}
```
-
-

2. **Find the airline name that starts with "Continental".**
- ```
db.delayData.find({carrier_name:/^Continental/}).limit(10).pretty();
```

```
db.delayData.find({carrier_name:/^Continental/}).limit(10).pretty();

        "_id" : ObjectId("625d6adf78e0b10c9e8d40ee"),
        "year" : 2003,
        "month" : 6,
        "carrier" : "CO",
        "carrier_name" : "Continental Air Lines Inc.",
        "airport" : "ABQ",
        "airport_name" : "Albuquerque, NM: Albuquerque International Sunport",
        "arr_flights" : 120,
        "arr_del15" : 22,
        "carrier_ct" : 5.57,
        "weather_ct" : 0.51,
        "nas_ct" : 10.04,
        "security_ct" : 0,
        "late_aircraft_ct" : 5.88,
        "arr_cancelled" : 0,
        "arr_diverted" : 0,
        "arr_delay" : 1277,
        "carrier_delay" : 279,
        "weather_delay" : 29,
        "nas_delay" : 544,
        "security_delay" : 0,
        "late_aircraft_delay" : 425,
        "" : ""
```

```
> db.delayData.count({carrier_name:/^Continental/})
6917
```

3. **Find the count of flights that are arriving for airports**

- `db.delayData.aggregate([{$group : {_id : "$airport", Fights : {$sum : "$arr_flights"}}},{"$sort": {Flights: 1}}])`

```
> db.delayData.aggregate([{$group : {_id : "$airport", Fights : {$sum : "$arr_flights"}}}])
{ "_id" : "PPG", "Fights" : 60 }
{ "_id" : "CIU", "Fights" : 391 }
{ "_id" : "SHD", "Fights" : 60 }
{ "_id" : "AZA", "Fights" : 131 }
{ "_id" : "ISN", "Fights" : 1463 }
{ "_id" : "ESC", "Fights" : 626 }
{ "_id" : "BRD", "Fights" : 697 }
{ "_id" : "HOB", "Fights" : 1257 }
{ "_id" : "GRI", "Fights" : 1454 }
{ "_id" : "MVY", "Fights" : 343 }
{ "_id" : "GUM", "Fights" : 958 }
{ "_id" : "ABR", "Fights" : 1042 }
{ "_id" : "UTM", "Fights" : 208 }
{ "_id" : "MHK", "Fights" : 5581 }
{ "_id" : "MWH", "Fights" : 675 }
{ "_id" : "SAF", "Fights" : 5175 }
{ "_id" : "ITH", "Fights" : 1995 }
{ "_id" : "OTH", "Fights" : 5561 }
{ "_id" : "LMT", "Fights" : 5674 }
{ "_id" : "YKM", "Fights" : 747 }
Type "it" for more
>
```

4. **Find the number of flight diversions that occur in St Louis**

Query:

- ```
  var m1 = function(){
      var rval = { airport: this.airport_name,
                    year: this.year };
      if( this.airport=="STL") {
        emit( rval, this.arr_diverted );
  ```

```
          }
      };
•    var r1 = function( key, valArr ) {
         return Array.sum( valArr );
      }
•    db.delayData.mapReduce( m1, r1, {out:'tmp'});
•    db.tmp.find().sort( {'_id.year':-1} )
```

Result:

```
> var m1 = function(){
...    var rval = { airport: this.airport_name,
...                 year: this.year };
...    if( this.airport=="STL") {
...       emit( rval, this.arr_diverted );
...    }
... };
>
> var r1 = function( key, valArr ) {
...    return Array.sum( valArr );
... }
>
> db.delayData.mapReduce( m1, r1, {out:'tmp'});
{
        "result" : "tmp",
        "timeMillis" : 751,
        "counts" : {
                "input" : 173657,
                "emit" : 1601,
                "reduce" : 135,
                "output" : 11
        },
        "ok" : 1
```

```
> db.tmp.find().sort( {'_id.year':-1} )
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2013 }, "value" : 94 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2012 }, "value" : 100 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2011 }, "value" : 150 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2010 }, "value" : 85 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2009 }, "value" : 83 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2008 }, "value" : 165 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2007 }, "value" : 144 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2006 }, "value" : 119 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2005 }, "value" : 116 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2004 }, "value" : 135 }
{ "_id" : { "airport" : "St. Louis, MO: Lambert-St. Louis International", "year" : 2003 }, "value" : 109 }
>
```

5.