**Assignment 2**

**Atlanta Population:**

* To find where city is “ATLANTA” and state is “GA”

> db.zipcodes.find({city:"ATLANTA",state:"GA"})

* Use $match for previous query

> db.zipcodes.aggregate({$match:{$and:[{city:"ATLANTA"},{state:"GA"}]}})

* Use $group to count no of zipcodes in Atlanta

> db.zipcodes.aggregate([{$group:{\_id:null,count:{$sum:1}}}])

{ "\_id" : null, "count" : 29353 }

* Total population in Atlanta

> db.zipcodes.aggregate([{$group:{\_id:"ATLANTA",total:{$sum:"$pop"}}}])

**Populations by State :**

* Use aggregate for total Population in each state

> db.zipcodes.aggregate( { $group:{ \_id:"$state",total:{$sum:"$pop"} } } )

* Sort the previous results by population , highest first

> db.zipcodes.aggregate( [{ $group:{ \_id:"$state",total:{$sum:"$pop"} } } , { $sort:{total:-1} }])

* Limit the previous result to just the first 3 results

> db.zipcodes.aggregate( [{ $group:{ \_id:"$state",total:{$sum:"$pop"} } } , { $sort:{total:-1} },{$limit:3}])

**Populations by City :**

* Total population in each city

> db.zipcodes.aggregate([{$group:{\_id:"$city",total:{$sum:"$pop"}}}])

* Sort the total by high to low , population by city

> db.zipcodes.aggregate( [{ $group:{ \_id:"$city",total:{$sum:"$pop"} } } , { $sort:{total:-1} }])

* Limit above result to 3, population by city

> db.zipcodes.aggregate([{ $group:{ \_id:"$city",total:{$sum:"$pop"} } }, { $sort:{total:-1}},{$limit:3}])

* Top 3 cities in population in Texas

> db.zipcodes.aggregate([{ $group:{ \_id:"$state.Texas.city",total:{$sum:"$pop"} } }, { $sort:{total:-1}},{$limit:3}])

**Bonus:**

* Average city population for each state

> db.zipcodes.aggregate( [{ $group:{ \_id:"$state",avg:{$avg:"$pop"}}}])

* Top 3 states in terms of average city population

> db.zipcodes.aggregate( [{ $group:{ \_id:"$city",avg:{$avg:"$pop"}}},{$sort:{avg:-1}},{$limit:3}])