**Aggregation Assignment**

**Atlanta Population**

**Q1 Use db.zipcodes.find() to filter results to only the results where city is ATLANTA and state is GA.**

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

**Q2 Use db.zipcodes.aggregate with $match to do the same as above.**

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

**Q3 Use $group to count the number of zip codes in Atlanta.**

Ansdb.zipcodes.aggregate([{$match:{city:"ATLANTA"}},{$group:{\_id:"$city",total:{$sum:1}}}])

**Q4 Use $group to find the total population in Atlanta.**

Ansdb.zipcodes.aggregates([{$group:{\_id:“ATLANTA”,totalpopulation:{$sum:{$add:“pop”}}}}])

**Populations By State**

**Q1. Use aggregate to calculate the total population for each state**

Ans db.zipcodes.aggregate([{$group:{\_ id: “$state”,totalpop:{$sum: “$pop”}}}])

**Q2 Sort the results by population, highest first**

Ans db.zipcodes.aggregate([{$group:{\_ id: “$state”,totalpop:{$sum: “$pop”}}},{$sort:{totalpop:-1}}])

**Q3 Limit the results to just the first 3 results. What are the top 3 states in population?**

Ans db.zipcodes.aggregate([{$group:{\_ id: “$state”,totalpop:{$sum: “$pop”}}},{$sort:{totalpop:-1}},{$limit:3}])

**Populations by City**

**Q1 Use aggregate to calculate the total population for each city (you have to use city/state combination). You can use a combination for the \_id of the $group: { city: '$city', state: '$state' }**

Ans db.zipcodes.aggregate([{$group:{\_id: { state: “$state”,city: “$city”}, population:{$sum:”pop”}}}])

**Q2 Sort the results by population, highest first**

Ans db.zipcodes.aggregate([{$group:{\_id: { state: “$state”,city: “$city”}, population:{$sum:”pop”}}}, {$sort:{pop: -1}}])

**Q3 Limit the results to just the first 3 results. What are the top 3 cities in population?**

Ans db.zipcodes.aggregate([{$group:{\_id: { state: “$state”,city: “$city”}, population:{$sum:”pop”}}}, {$sort:{pop: -1}},{$limit:3}])

**Q4 What are the top 3 cities in population in Texas?**

Ans db.zipcodes.aggregate([{$match:{state: “TX”}},{$group:{\_id: “$city”,population:{$sum: “$pop”}}},{$sort:{population:-1}},{$limit:3}])

**Bonus**

**Q1 Write a query to get the average city population for each state**

Ans . db.zipcodes.aggregate([{$group:{\_id:{state: “$state”, city: “$city”}, pop: {$sum: “$pop”}}},{$group:{ \_id: “$\_id.state”, avg: {$avg: “$pop”}}}])

**Q2 What are the top 3 states in terms of average city population?**

Ans . db.zipcodes.aggregate([{$group:{\_id:{state: “$state”, city: “$city”}, pop: {$sum: “$pop”}}},{$group:{ \_id: “$\_id.state”, avg: {$avg: “$pop”}}},{$sort:{avg:-1}},{$limit:3}])