**MongoDB. Home Task 1**

1. Query: db.restaurants.find({cuisine:"Chinese",borough:"Queens"}).count()

Result 728

1. Query: db.restaurants.aggregate([

{$project:{"restaurant\_id":1, "grades.score":1}},

{$unwind:"$grades"},

{$sort:{"grades.score":-1}},

{$limit:1}

])

Result:

{ "\_id" : ObjectId("5c0f796d25dc8ddeaef5cd0f"), "grades" : { "score" : 131 }, "restaurant\_id" : "40372466" }

1. Query: db.restaurants.update(

{ borough: "Manhattan"},

{$push: {'grades': { grade: "A", score: 7, date: ISODate() }}},

{multi:true}

)

Result

WriteResult({ "nMatched" : 10259, "nUpserted" : 0, "nModified" : 10259 })

One of items is:

{

"\_id" : ObjectId("5c0f796d25dc8ddeaef5cbec"),

"address" : {

"building" : "837",

"coord" : [

-73.9712,

40.751703

],

"street" : "2 Avenue",

"zipcode" : "10017"

},

"borough" : "Manhattan",

"cuisine" : "American",

"grades" : [

{

"date" : ISODate("2014-07-22T00:00:00Z"),

"grade" : "B",

"score" : 19

},

{

"date" : ISODate("2013-09-26T00:00:00Z"),

"grade" : "A",

"score" : 12

},

{

"date" : ISODate("2013-02-26T00:00:00Z"),

"grade" : "A",

"score" : 11

},

{

"date" : ISODate("2012-04-30T00:00:00Z"),

"grade" : "A",

"score" : 8

},

{

"date" : ISODate("2011-10-05T00:00:00Z"),

"grade" : "A",

"score" : 12

},

{

"grade" : "A",

"score" : 7,

"date" : ISODate("2018-12-11T11:46:12.715Z")

}

],

"name" : "Palm Restaurant",

"restaurant\_id" : "40364355"

}

4.

Query: db.restaurants.find({"grades.8.score":{$lt:7}},{ name: 1, \_id: 0 }).pretty()

Result

{ "name" : "Silver Krust West Indian Restaurant" }

{ "name" : "Pure Food" }

5.

Query:

db.restaurants.find({$and:[

{"cuisine":"Seafood"},

{"grades":

{$elemMatch:

{grade:"B",

date : { "$gte": new ISODate("2014-02-01"),

"$lte": new ISODate("2014-03-01")}}

}}

]},{ borough:1, \_id: 1 }).pretty()

Result

{ "\_id" : ObjectId("5c0f796e25dc8ddeaef6011a"), "borough" : "Bronx" }

{ "\_id" : ObjectId("5c0f796e25dc8ddeaef60394"), "borough" : "Manhattan" }

**Part2**

1. **db.restaurants.createIndex( { name: -1 } )**

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 1,

"numIndexesAfter" : 2,

"ok" : 1

}

db.restaurants.explain("executionStats").find({ name: "Glorious Food" })

{

"queryPlanner" : {

"plannerVersion" : 1,

"namespace" : "frontcamp.restaurants",

"indexFilterSet" : false,

"parsedQuery" : {

"name" : {

"$eq" : "Glorious Food"

}

},

"winningPlan" : {

"stage" : "FETCH",

"inputStage" : {

"stage" : "IXSCAN",

"keyPattern" : {

"name" : -1

},

"indexName" : "name\_-1",

"isMultiKey" : false,

"multiKeyPaths" : {

"name" : [ ]

},

"isUnique" : false,

"isSparse" : false,

"isPartial" : false,

"indexVersion" : 2,

"direction" : "forward",

"indexBounds" : {

"name" : [

"[\"Glorious Food\", \"Glorious Food\"]"

]

}

}

},

"rejectedPlans" : [ ]

},

"executionStats" : {

"executionSuccess" : true,

"nReturned" : 1,

"executionTimeMillis" : 15,

"totalKeysExamined" : 1,

"totalDocsExamined" : 1,

"executionStages" : {

"stage" : "FETCH",

"nReturned" : 1,

"executionTimeMillisEstimate" : 0,

"works" : 2,

"advanced" : 1,

"needTime" : 0,

"needYield" : 0,

"saveState" : 0,

"restoreState" : 0,

"isEOF" : 1,

"invalidates" : 0,

"docsExamined" : 1,

"alreadyHasObj" : 0,

"inputStage" : {

"stage" : "IXSCAN",

"nReturned" : 1,

"executionTimeMillisEstimate" : 0,

"works" : 2,

"advanced" : 1,

"needTime" : 0,

"needYield" : 0,

"saveState" : 0,

"restoreState" : 0,

"isEOF" : 1,

"invalidates" : 0,

"keyPattern" : {

"name" : -1

},

"indexName" : "name\_-1",

"isMultiKey" : false,

"multiKeyPaths" : {

"name" : [ ]

},

"isUnique" : false,

"isSparse" : false,

"isPartial" : false,

"indexVersion" : 2,

"direction" : "forward",

"indexBounds" : {

"name" : [

"[\"Glorious Food\", \"Glorious Food\"]"

]

},

"keysExamined" : 1,

"seeks" : 1,

"dupsTested" : 0,

"dupsDropped" : 0,

"seenInvalidated" : 0

}

}

},

"serverInfo" : {

"host" : "EPBYMINW5469",

"port" : 27017,

"version" : "4.0.4",

"gitVersion" : "f288a3bdf201007f3693c58e140056adf8b04839"

},

"ok" : 1

}

1. **db.restaurants.dropIndex ( { name: -1 } )**
2. **db.restaurants.createIndex({restaurant\_id:1, borough:1})**

db.restaurants.explain("executionStats").find({ restaurant\_id:"41098650" }, { \_id:0, borough: 1 })

{

"queryPlanner" : {

"plannerVersion" : 1,

"namespace" : "frontcamp.restaurants",

"indexFilterSet" : false,

"parsedQuery" : {

"restaurant\_id" : {

"$eq" : "41098650"

}

},

"winningPlan" : {

"stage" : "PROJECTION",

"transformBy" : {

"\_id" : 0,

"borough" : 1

},

"inputStage" : {

"stage" : "IXSCAN",

"keyPattern" : {

"restaurant\_id" : 1,

"borough" : 1

},

"indexName" : "restaurant\_id\_1\_borough\_1",

"isMultiKey" : false,

"multiKeyPaths" : {

"restaurant\_id" : [ ],

"borough" : [ ]

},

"isUnique" : false,

"isSparse" : false,

"isPartial" : false,

"indexVersion" : 2,

"direction" : "forward",

"indexBounds" : {

"restaurant\_id" : [

"[\"41098650\", \"41098650\"]"

],

"borough" : [

"[MinKey, MaxKey]"

]

}

}

},

"rejectedPlans" : [ ]

},

"executionStats" : {

"executionSuccess" : true,

"nReturned" : 1,

"executionTimeMillis" : 1,

"totalKeysExamined" : 1,

"totalDocsExamined" : 0,

"executionStages" : {

"stage" : "PROJECTION",

"nReturned" : 1,

"executionTimeMillisEstimate" : 0,

"works" : 2,

"advanced" : 1,

"needTime" : 0,

"needYield" : 0,

"saveState" : 0,

"restoreState" : 0,

"isEOF" : 1,

"invalidates" : 0,

"transformBy" : {

"\_id" : 0,

"borough" : 1

},

"inputStage" : {

"stage" : "IXSCAN",

"nReturned" : 1,

"executionTimeMillisEstimate" : 0,

"works" : 2,

"advanced" : 1,

"needTime" : 0,

"needYield" : 0,

"saveState" : 0,

"restoreState" : 0,

"isEOF" : 1,

"invalidates" : 0,

"keyPattern" : {

"restaurant\_id" : 1,

"borough" : 1

},

"indexName" : "restaurant\_id\_1\_borough\_1",

"isMultiKey" : false,

"multiKeyPaths" : {

"restaurant\_id" : [ ],

"borough" : [ ]

},

"isUnique" : false,

"isSparse" : false,

"isPartial" : false,

"indexVersion" : 2,

"direction" : "forward",

"indexBounds" : {

"restaurant\_id" : [

"[\"41098650\", \"41098650\"]"

],

"borough" : [

"[MinKey, MaxKey]"

]

},

"keysExamined" : 1,

"seeks" : 1,

"dupsTested" : 0,

"dupsDropped" : 0,

"seenInvalidated" : 0

}

}

},

"serverInfo" : {

"host" : "EPBYMINW5469",

"port" : 27017,

"version" : "4.0.4",

"gitVersion" : "f288a3bdf201007f3693c58e140056adf8b04839"

},

"ok" : 1

}

1. **db.restaurants.createIndex({cuisine:1},{partialFilterExpression:{"borough":"Staten Island"}})**

db.restaurants.explain("executionStats").find({ borough: "Staten Island", cuisine: "American" })

{

"queryPlanner" : {

"plannerVersion" : 1,

"namespace" : "frontcamp.restaurants",

"indexFilterSet" : false,

"parsedQuery" : {

"$and" : [

{

"borough" : {

"$eq" : "Staten Island"

}

},

{

"cuisine" : {

"$eq" : "American"

}

}

]

},

"winningPlan" : {

"stage" : "FETCH",

"filter" : {

"borough" : {

"$eq" : "Staten Island"

}

},

"inputStage" : {

"stage" : "IXSCAN",

"keyPattern" : {

"cuisine" : 1

},

"indexName" : "cuisine\_1",

"isMultiKey" : false,

"multiKeyPaths" : {

"cuisine" : [ ]

},

"isUnique" : false,

"isSparse" : false,

"isPartial" : true,

"indexVersion" : 2,

"direction" : "forward",

"indexBounds" : {

"cuisine" : [

"[\"American\", \"American\"]"

]

}

}

},

"rejectedPlans" : [ ]

},

"executionStats" : {

"executionSuccess" : true,

"nReturned" : 244,

"executionTimeMillis" : 0,

"totalKeysExamined" : 244,

"totalDocsExamined" : 244,

"executionStages" : {

"stage" : "FETCH",

"filter" : {

"borough" : {

"$eq" : "Staten Island"

}

},

"nReturned" : 244,

"executionTimeMillisEstimate" : 0,

"works" : 245,

"advanced" : 244,

"needTime" : 0,

"needYield" : 0,

"saveState" : 1,

"restoreState" : 1,

"isEOF" : 1,

"invalidates" : 0,

"docsExamined" : 244,

"alreadyHasObj" : 0,

"inputStage" : {

"stage" : "IXSCAN",

"nReturned" : 244,

"executionTimeMillisEstimate" : 0,

"works" : 245,

"advanced" : 244,

"needTime" : 0,

"needYield" : 0,

"saveState" : 1,

"restoreState" : 1,

"isEOF" : 1,

"invalidates" : 0,

"keyPattern" : {

"cuisine" : 1

},

"indexName" : "cuisine\_1",

"isMultiKey" : false,

"multiKeyPaths" : {

"cuisine" : [ ]

},

"isUnique" : false,

"isSparse" : false,

"isPartial" : true,

"indexVersion" : 2,

"direction" : "forward",

"indexBounds" : {

"cuisine" : [

"[\"American\", \"American\"]"

]

},

"keysExamined" : 244,

"seeks" : 1,

"dupsTested" : 0,

"dupsDropped" : 0,

"seenInvalidated" : 0

}

}

},

"serverInfo" : {

"host" : "EPBYMINW5469",

"port" : 27017,

"version" : "4.0.4",

"gitVersion" : "f288a3bdf201007f3693c58e140056adf8b04839"

},

"ok" : 1

}

1. **db.restaurants.createIndex({ "grades.8.score ":1, “name”:1 },{partialFilterExpression:{"grades.8.score":{"$lt":7}}})**

db.restaurants.explain("executionStats").find({"grades.8.score":{$lt:7}},{ name: 1, \_id: 0 })

{

"queryPlanner" : {

"plannerVersion" : 1,

"namespace" : "frontcamp.restaurants",

"indexFilterSet" : false,

"parsedQuery" : {

"grades.8.score" : {

"$lt" : 7

}

},

"winningPlan" : {

"stage" : "PROJECTION",

"transformBy" : {

"name" : 1,

"\_id" : 0

},

"inputStage" : {

"stage" : "COLLSCAN",

"filter" : {

"grades.8.score" : {

"$lt" : 7

}

},

"direction" : "forward"

}

},

"rejectedPlans" : [ ]

},

"executionStats" : {

"executionSuccess" : true,

"nReturned" : 2,

"executionTimeMillis" : 53,

"totalKeysExamined" : 0,

"totalDocsExamined" : 25359,

"executionStages" : {

"stage" : "PROJECTION",

"nReturned" : 2,

"executionTimeMillisEstimate" : 51,

"works" : 25361,

"advanced" : 2,

"needTime" : 25358,

"needYield" : 0,

"saveState" : 199,

"restoreState" : 199,

"isEOF" : 1,

"invalidates" : 0,

"transformBy" : {

"name" : 1,

"\_id" : 0

},

"inputStage" : {

"stage" : "COLLSCAN",

"filter" : {

"grades.8.score" : {

"$lt" : 7

}

},

"nReturned" : 2,

"executionTimeMillisEstimate" : 51,

"works" : 25361,

"advanced" : 2,

"needTime" : 25358,

"needYield" : 0,

"saveState" : 199,

"restoreState" : 199,

"isEOF" : 1,

"invalidates" : 0,

"direction" : "forward",

"docsExamined" : 25359

}

}

},

"serverInfo" : {

"host" : "EPBYMINW5469",

"port" : 27017,

"version" : "4.0.4",

"gitVersion" : "f288a3bdf201007f3693c58e140056adf8b04839"

},

"ok" : 1

}