**Bases de Datos 2 2020 -TP2**

Bases de Datos NoSQL / Práctica con MongoDB

entrega: 11/5

**Parte 1: Bases de Datos NoSQL y Relacionales**

▶︎ Si bien las BBDD NoSQL tienen diferencias fundamentales con los sistemas de BBDD

Relacionales o RDBMS, algunos conceptos comunes se pueden relacionar. Responda las

siguientes preguntas, considerando MongoDB en particular como Base de Datos NoSQL.

*1. ¿Cuáles de los siguientes conceptos de RDBMS existen en MongoDB? En caso de no existir, ¿hay alguna alternativa? ¿Cuál es?*

• Base de Datos: El concepto existe.

• Tabla / Relación: El concepto de tabla en si no existe, pero es reemplazado por el de colecciones. El modelo relacional es reemplazado por documentos.Se pierde el concepto de esquemas, por lo tanto el concepto de unión de tablas en esquemas relacionales. Las relaciones pueden darse declarando la estructura de un documento dentro de otro o referenciando ids de otros documentos en un campo del primero.

• Fila / Tupla: Las filas y tuplas no están definidas en un documento. No es necesario organizar la información de esa forma. En MongoDB los datos se modelan en documentos. Las BBDD no relacionales proporcionan flexibilidad a la hora de persistir las estructuras de datos.

• Columna: Las columnas no están definidas en un documento, estas cambian por los campos que se presentan en los documentos. Los documentos de una misma colección pueden tener los mismos campos o faltarles algunos.

*2. MongoDB tiene soporte para transacciones, pero no es igual que el de los RDBMS. ¿Cuál es el alcance de una transacción en MongoDB?*

Las transacciones en MongoDB son atómicas tienen un alcance por documento. Pueden darse problemas de integridad al trabajar con datos separados en distintos documentos. Sólo se garantiza la atomicidad en cada write singular aunque se hiciera una operación que modificara muchos documentos.

*3. Para acelerar las consultas, MongoDB tiene soporte para índices. ¿Qué tipos de índices soporta?*

MongoDB permite crear índices de:

- Single Field Index: De forma predeterminada, todas las colecciones tienen un índice en el campo\_id, y las aplicaciones y los usuarios pueden agregar índices adicionales en cualquier campo del documento para admitir consultas y operaciones importantes.

- Compound Index: Permite la creación de un índice basado en múltiples campos del documento, indexa en el orden en el que se creó el índice..

- Multikey Index: Para indexar un campo que contiene un valor de matriz, MongoDB crea una clave de índice para cada elemento de la matriz. Estos índices *multiciclo* admiten consultas eficientes contra campos de matriz. Los índices Multikey se pueden construir sobre matrices que contienen valores escalares (por ejemplo, cadenas, números) *y* documentos anidados.

- Geospatial Index: Índices especializados para datos de coordenadas y geolocalización.

- 2d Index: Se puede utilizar si su base de datos tiene [pares de coordenadas](https://docs.mongodb.com/manual/geospatial-queries/#geospatial-legacy) heredados [heredados](https://docs.mongodb.com/manual/geospatial-queries/#geospatial-legacy) de MongoDB 2.2 o anterior, y no tiene la intención de almacenar ningún dato de ubicación como objetos [GeoJSON](https://docs.mongodb.com/manual/reference/glossary/#term-geojson) .

- 2dsphere Index: Admite consultas que calculan geometrías en una esfera similar a la Tierra, también admite todas las consultas geoespaciales de MongoDB: consultas de inclusión, intersección y proximidad.

- Text Index: MongoDB los proporciona para admitir consultas de búsqueda de texto en contenido de cadena. Los índices pueden incluir cualquier campo cuyo valor sea una cadena o una matriz de elementos de cadena.

- Hashed Index: Permite indexar campos a través de una función de hash. Solo permite la búsqueda por igualdad, no por rangos.

*4. ¿Existen claves foráneas en MongoDB?*

Las FK no son necesarias en un modelo de base de datos que permite almacenar la información en una estructura flexible, dado esto nunca habrá restricciones al borrado o a la modificación o una operación "en cascada" como resultado.

**Parte 2: Primeros pasos con MongoDB**

▶︎ Descargue la última versión de MongoDB desde el sitio oficial. Ingrese al cliente de línea de comando para realizar los siguientes ejercicios.

*5. Cree una nueva base de datos llamada airbdb, y una colección llamada apartments. En esa colección inserte un nuevo documento (un departamento) con los siguientes atributos:*

*{name:’Apartment with 2 bedrooms’, capacity:4} recupere la información del departamento usando el comando db.apartments.find() (puede agregar la función .pretty() al final de la expresión para ver los datos indentados). Notará que no se encuentran exactamente los atributos que insertó. ¿Cuál es la diferencia?*

▶︎ Una característica fundamental de MongoDB y otras bases NoSQL es que los documentos no tienen una estructura definida, como puede ser una tabla en un RDBMS. En una misma colección pueden convivir documentos con diferentes atributos, e incluso atributos de múltiples valores y documentos embebidos.

* Ingreso a Robo 3T
* Creo la base de datos airbdb
* Creo colección apartments e inserta primer dato

db.apartments.insert({name:'Apartment with 2 bedrooms', capacity:4})

* Muestra elementos de la collection

db.apartments.find().pretty()

{

"\_id" : ObjectId("5ea8afe314e4be6e0921c214"),

"name" : "Apartment with 2 bedrooms",

"capacity" : 4.0

}

Además de name y capacity, se le agregó un ObjectId.

*6. Agregue los siguientes documentos a la colección de departamentos:*

*{name:’New Apartment', capacity:3, services: ['wifi', 'ac']}*

*{name:’Nice apt for 6‘, capacity:6, services: ['parking']}*

*{name:’1950s Apartment‘, capacity:3}*

*{name:’Duplex Floor’, capacity:4, services: ['wifi', ‘breakfast’, ‘laundry’]}*

*Y busque los departamentos:*

*- con capacidad para 3 personas.*

*- con capacidad para 4 personas o más*

*- con wifi*

*- que incluyan la palabra ‘Apartment’ en su nombre*

*- con la palabra ‘Apartment’ en su nombre y capacidad para más de 3 personas*

*- sin servicios (es decir, que el atributo esté ausente)*

*vuelva a realizar la última consulta pero proyecte sólo el nombre del departamento en los*

*resultados, omitiendo incluso el atributo \_id de la proyección.*

▶︎ En MongoDB hay diferentes maneras de realizar actualizaciones, de acuerdo a las

necesidades del esquema flexible de documentos.

db.apartments.insert([{name:'New Apartment', capacity:3, services: ['wifi', 'ac']},

{name:'Nice apt for 6', capacity:6, services: ['parking']},

{name:'1950s Apartment', capacity:3},

{name:'Duplex Floor', capacity:4, services: ['wifi', 'breakfast', 'laundry']} ])

* Departamentos con capacidad para 3 personas

db.apartments.find({capacity:3}).pretty()

{

"\_id" : ObjectId("5ea8b12014e4be6e0921c215"),

"name" : "New Apartment",

"capacity" : 3.0,

"services" : [

"wifi",

"ac"

]

}

{

"\_id" : ObjectId("5ea8b12014e4be6e0921c217"),

"name" : "1950s Apartment",

"capacity" : 3.0

}

* Departamentos con capacidad para 4 personas o más

db.apartments.find({ capacity: {$gt:4} }).pretty()

{

"\_id" : ObjectId("5ea8b12014e4be6e0921c216"),

"name" : "Nice apt for 6",

"capacity" : 6.0,

"services" : [

"parking"

]

}

* Departamentos con wifi

db.apartments.find({ services: 'wifi' }).pretty()

{

"\_id" : ObjectId("5ea8b12014e4be6e0921c215"),

"name" : "New Apartment",

"capacity" : 3.0,

"services" : [

"wifi",

"ac"

]

}

{

"\_id" : ObjectId("5ea8b12014e4be6e0921c218"),

"name" : "Duplex Floor",

"capacity" : 4.0,

"services" : [

"wifi",

"breakfast",

"laundry"

]

}

* Departamentos que incluyan la palabra ‘Apartment’ en su nombre

db.apartments.find({ name: /.\*Apartment.\*/ }).pretty()

{

"\_id" : ObjectId("5ea8afe314e4be6e0921c214"),

"name" : "Apartment with 2 bedrooms",

"capacity" : 4.0

}

{

"\_id" : ObjectId("5ea8b12014e4be6e0921c215"),

"name" : "New Apartment",

"capacity" : 3.0,

"services" : [

"wifi",

"ac"

]

}

{

"\_id" : ObjectId("5ea8b12014e4be6e0921c217"),

"name" : "1950s Apartment",

"capacity" : 3.0

}

* Departamentos con la palabra ‘Apartment’ en su nombre y capacidad para más de 3 personas

db.apartments.find({ name: /.\*Apartment.\*/ , capacity: {$gt:3}}).pretty()

{

"\_id" : ObjectId("5ea8afe314e4be6e0921c214"),

"name" : "Apartment with 2 bedrooms",

"capacity" : 4.0

}

* Departamentos sin servicios (es decir, que el atributo esté ausente)

db.apartments.find( {services: {$exists: false} }).pretty()

{

"\_id" : ObjectId("5ea8afe314e4be6e0921c214"),

"name" : "Apartment with 2 bedrooms",

"capacity" : 4.0

}

{

"\_id" : ObjectId("5ea8b12014e4be6e0921c217"),

"name" : "1950s Apartment",

"capacity" : 3.0

}

* Vuelva a realizar la última consulta pero proyecte sólo el nombre del departamento en los resultados, omitiendo incluso el atributo \_id de la proy

db.apartments.find( {services: {$exists: false} } , {name:1, \_id:0}).pretty()

{

"name" : "Apartment with 2 bedrooms"

}

{

"name" : "1950s Apartment"

}

*7. Actualice el “Duplex Floor” asignándole capacidad 5*

db.apartments.update( {name: 'Duplex Floor'}, {$set: {capacity: 5}})

*8. Agregue “laundry” al listado de services del “Nice apt for 6”.*

db.apartments.updateOne({name: 'Nice apt for 6'}, { $push: { services: 'laundry' }})

{

"acknowledged" : true,

"matchedCount" : 1.0,

"modifiedCount" : 1.0

}

*9. Agregue una persona más de capacidad a todos los departamentos con wifi.*

db.apartments.updateMany({services: 'wifi'}, { $inc: { capacity: 1 }})

{

"acknowledged" : true,

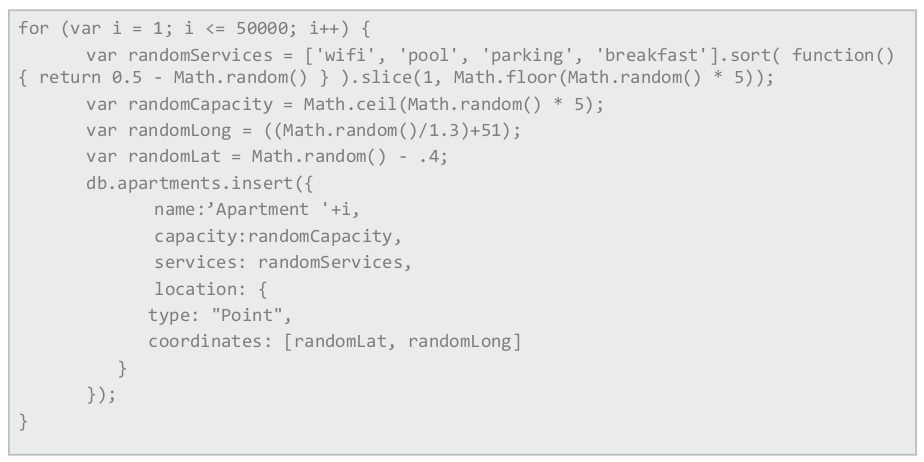
"matchedCount" : 2.0,

"modifiedCount" : 2.0

}

**Parte 3: Índices**

▶︎ Elimine todos los departamentos de la colección. Guarde en un archivo llamado ‘generador.js’ el siguiente código JavaScript y ejecútelo con: load(<ruta del archivo ‘generador.js’>).



* Eliminar todos los departamentos

db.apartments.remove({})

db.apartments.find()

load('/home/bd2/Escritorio/generador.js')

*10. Busque en la colección de departamentos si existe algún índice definido.*

db.apartments.getIndexes()

[

{

"v" : 2,

"key" : {

"\_id" : 1

},

"name" : "\_id\_",

"ns" : "airbdb.apartments"

}

]

*11. Cree un índice para el campo name. Busque los departamentos que tengan en su nombre el string “11” y utilice el método explain("executionStats") al final de la consulta, para*

*comparar la cantidad de documentos examinados y el tiempo en milisegundos de la*

*consulta con y sin índice.*

db.apartments.createIndex({"name" : 1})

{

"createdCollectionAutomatically" : false,

"numIndexesBefore" : 1,

"numIndexesAfter" : 2,

"ok" : 1.0

}

*db.apartments.getIndexes()*

[

{

"v" : 2,

"key" : {

"\_id" : 1

},

"name" : "\_id\_",

"ns" : "airbdb.apartments"

},

**{**

"v" : 2,

"key" : {

"name" : 1.0

},

"name" : "name\_1",

"ns" : "airbdb.apartments"

}

]

db.apartments.find({"name": /.\*11\*./}).explain("executionStats")

/\* 1 \*/

{

"queryPlanner" : {

"plannerVersion" : 1,

"namespace" : "airbdb.apartments",

"indexFilterSet" : false,

"parsedQuery" : {

"name" : {

"$regex" : ".\*11\*."

}

},

"winningPlan" : {

"stage" : "FETCH",

"inputStage" : {

"stage" : "IXSCAN",

"filter" : {

"name" : {

"$regex" : ".\*11\*."

}

},

"keyPattern" : {

"name" : 1.0

},

"indexName" : "name\_1",

"isMultiKey" : false,

"multiKeyPaths" : {

"name" : []

},

"isUnique" : false,

"isSparse" : false,

"isPartial" : false,

"indexVersion" : 2,

"direction" : "forward",

"indexBounds" : {

"name" : [

"[\"\", {})",

"[/.\*11\*./, /.\*11\*./]"

]

}

}

},

"rejectedPlans" : []

},

"executionStats" : {

"executionSuccess" : true,

"nReturned" : 20840,

"executionTimeMillis" : 176,

"totalKeysExamined" : 50000,

"totalDocsExamined" : 20840,

"executionStages" : {

"stage" : "FETCH",

"nReturned" : 20840,

"executionTimeMillisEstimate" : 14,

"works" : 50001,

"advanced" : 20840,

"needTime" : 29160,

"needYield" : 0,

"saveState" : 390,

"restoreState" : 390,

"isEOF" : 1,

"docsExamined" : 20840,

"alreadyHasObj" : 0,

"inputStage" : {

"stage" : "IXSCAN",

"filter" : {

"name" : {

"$regex" : ".\*11\*."

}

},

"nReturned" : 20840,

"executionTimeMillisEstimate" : 7,

"works" : 50001,

"advanced" : 20840,

"needTime" : 29160,

"needYield" : 0,

"saveState" : 390,

"restoreState" : 390,

"isEOF" : 1,

"keyPattern" : {

"name" : 1.0

},

"indexName" : "name\_1",

"isMultiKey" : false,

"multiKeyPaths" : {

"name" : []

},

"isUnique" : false,

"isSparse" : false,

"isPartial" : false,

"indexVersion" : 2,

"direction" : "forward",

"indexBounds" : {

"name" : [

"[\"\", {})",

"[/.\*11\*./, /.\*11\*./]"

]

},

"keysExamined" : 50000,

"seeks" : 1,

"dupsTested" : 0,

"dupsDropped" : 0

}

}

},

"serverInfo" : {

"host" : "debian",

"port" : 27017,

"version" : "4.2.3",

"gitVersion" : "6874650b362138df74be53d366bbefc321ea32d4"

},

"ok" : 1.0

}

*12. Busque los departamentos dentro de la ciudad de Londres. Para esto, puede definir una variable en la terminal y asignarle como valor el polígono del archivo provisto greaterlondon.geojson (copiando y pegando directamente). Cree un índice geoespacial de tipo 2dsphere para el campo location de la colección apartments y, de la misma forma que en el punto 11, compare la performance de la consulta con y sin dicho índice.*

var greaterlondon = {

"type":"MultiPolygon",

"coordinates":[[[

[0.210307, 51.485877],

[0.203326, 51.454328],

[0.171111, 51.441565],

[0.151133, 51.420431],

[0.159891, 51.394648],

[0.136931, 51.344174],

[0.085001, 51.316023],

[0.085665, 51.293085],

[0.058483, 51.289355],

[0.032881, 51.307521],

[0.014982, 51.291787],

[0.002266, 51.329138],

[-0.037918, 51.338705],

[-0.047855, 51.326511],

[-0.084781, 51.315885],

[-0.094352, 51.299355],

[-0.12432, 51.28676],

[-0.154371, 51.310254],

[-0.16314, 51.330243],

[-0.217289, 51.343388],

[-0.226898, 51.362595],

[-0.260841, 51.379556],

[-0.285462, 51.364251],

[-0.319307, 51.327812],

[-0.330534, 51.348421],

[-0.308695, 51.37545],

[-0.31772, 51.393668],

[-0.419277, 51.432353],

[-0.456488, 51.438107],

[-0.460465, 51.457035],

[-0.506834, 51.471057],

[-0.483194, 51.506646],

[-0.495488, 51.538333],

[-0.477367, 51.555254],

[-0.496983, 51.601163],

[-0.497247, 51.631654],

[-0.457152, 51.612291],

[-0.438195, 51.619892],

[-0.401441, 51.613166],

[-0.316696, 51.640532],

[-0.296151, 51.635444],

[-0.252275, 51.646561],

[-0.249881, 51.654611],

[-0.19097, 51.663982],

[-0.163632, 51.6824],

[-0.109283, 51.691743],

[-0.066368, 51.683843],

[-0.011092, 51.680867],

[-0.012286, 51.646227],

[0.062972, 51.60691],

[0.087118, 51.604465],

[0.136079, 51.6236],

[0.168874, 51.621417],

[0.22406, 51.631734],

[0.264299, 51.60783],

[0.290262, 51.564298],

[0.313007, 51.565816],

[0.331194, 51.540761],

[0.265319, 51.532149],

[0.263655, 51.517869],

[0.214128, 51.496039],

[0.210307, 51.485877]

]]]

}

#Sin índice

db.apartments.find( { location: { $geoWithin: { $geometry: greaterlondon }}})

/\* 1 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884971d"),

"name" : "Apartment4",

"capacity" : 5.0,

"services" : [

"breakfast",

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0145444409763117,

51.3310995291391

]

}

}

/\* 2 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849725"),

"name" : "Apartment12",

"capacity" : 2.0,

"services" : [

"wifi",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00637284973296282,

51.5998378582935

]

}

}

/\* 3 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849727"),

"name" : "Apartment14",

"capacity" : 1.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.389241035657318,

51.4749372312802

]

}

}

/\* 4 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849728"),

"name" : "Apartment15",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.0562148950721209,

51.3964456882744

]

}

}

/\* 5 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884972b"),

"name" : "Apartment18",

"capacity" : 5.0,

"services" : [

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.127138560058622,

51.5504020004592

]

}

}

/\* 6 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884972e"),

"name" : "Apartment21",

"capacity" : 2.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.301883415752778,

51.3993052256941

]

}

}

/\* 7 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884972f"),

"name" : "Apartment22",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.0245063438172813,

51.5219487552366

]

}

}

/\* 8 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849731"),

"name" : "Apartment24",

"capacity" : 3.0,

"services" : [

"breakfast",

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0401922842486203,

51.6000328309877

]

}

}

/\* 9 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849732"),

"name" : "Apartment25",

"capacity" : 4.0,

"services" : [

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0684627788360967,

51.3091391857651

]

}

}

/\* 10 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849734"),

"name" : "Apartment27",

"capacity" : 5.0,

"services" : [

"wifi",

"pool",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.306234858781067,

51.6255486733312

]

}

}

/\* 11 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849735"),

"name" : "Apartment28",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.20138256595876,

51.5172214623273

]

}

}

/\* 12 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849736"),

"name" : "Apartment29",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.136664054111031,

51.3757569679682

]

}

}

/\* 13 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884973e"),

"name" : "Apartment37",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.164263722952096,

51.5999051046617

]

}

}

/\* 14 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849740"),

"name" : "Apartment39",

"capacity" : 1.0,

"services" : [

"pool",

"wifi",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.180568410044531,

51.5967141798536

]

}

}

/\* 15 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849741"),

"name" : "Apartment40",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.348475407049546,

51.5687055287712

]

}

}

/\* 16 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849742"),

"name" : "Apartment41",

"capacity" : 5.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.104698661024599,

51.5629716188147

]

}

}

/\* 17 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884974c"),

"name" : "Apartment51",

"capacity" : 5.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.253692003878833,

51.6407696312894

]

}

}

/\* 18 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884974e"),

"name" : "Apartment53",

"capacity" : 4.0,

"services" : [

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.204687843977544,

51.4312982873107

]

}

}

/\* 19 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849750"),

"name" : "Apartment55",

"capacity" : 2.0,

"services" : [

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.353604138382645,

51.5847771794364

]

}

}

/\* 20 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849755"),

"name" : "Apartment60",

"capacity" : 3.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.104098202022743,

51.576482326862

]

}

}

/\* 21 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849756"),

"name" : "Apartment61",

"capacity" : 3.0,

"services" : [

"parking",

"pool",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.35823780802131,

51.4424453267893

]

}

}

/\* 22 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849759"),

"name" : "Apartment64",

"capacity" : 1.0,

"services" : [

"breakfast",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.259158669629264,

51.5234248540479

]

}

}

/\* 23 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884975a"),

"name" : "Apartment65",

"capacity" : 2.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.27439634824833,

51.5494119238722

]

}

}

/\* 24 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884975c"),

"name" : "Apartment67",

"capacity" : 3.0,

"services" : [

"wifi",

"pool",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.138477014636728,

51.52897489839

]

}

}

/\* 25 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849760"),

"name" : "Apartment71",

"capacity" : 3.0,

"services" : [

"parking",

"wifi",

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.205909485923841,

51.6395789957528

]

}

}

/\* 26 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849764"),

"name" : "Apartment75",

"capacity" : 3.0,

"services" : [

"breakfast",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.190413360404004,

51.5809597935812

]

}

}

/\* 27 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849769"),

"name" : "Apartment80",

"capacity" : 2.0,

"services" : [

"wifi",

"pool",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.32987551167073,

51.5048741615666

]

}

}

/\* 28 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884976a"),

"name" : "Apartment81",

"capacity" : 1.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.147804086469612,

51.5275982469922

]

}

}

/\* 29 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849786"),

"name" : "Apartment109",

"capacity" : 1.0,

"services" : [

"pool",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.0473316943084561,

51.4922407498436

]

}

}

/\* 30 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884978b"),

"name" : "Apartment114",

"capacity" : 1.0,

"services" : [

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.303074391270677,

51.4850920617541

]

}

}

/\* 31 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884978e"),

"name" : "Apartment117",

"capacity" : 3.0,

"services" : [

"pool",

"parking",

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.322976588248253,

51.5412756691406

]

}

}

/\* 32 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849796"),

"name" : "Apartment125",

"capacity" : 4.0,

"services" : [

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.089943273341007,

51.5199650367408

]

}

}

/\* 33 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884979a"),

"name" : "Apartment129",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.130598398263993,

51.5897634461333

]

}

}

/\* 34 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884979b"),

"name" : "Apartment130",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.0658040611282589,

51.6751972837762

]

}

}

/\* 35 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf884979e"),

"name" : "Apartment133",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.21949099459085,

51.566809601763

]

}

}

/\* 36 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497a6"),

"name" : "Apartment141",

"capacity" : 3.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0343996218386615,

51.5412438845414

]

}

}

/\* 37 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497a7"),

"name" : "Apartment142",

"capacity" : 2.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.00783006661752228,

51.610280703843

]

}

}

/\* 38 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497af"),

"name" : "Apartment150",

"capacity" : 5.0,

"services" : [

"wifi",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0926084937239858,

51.3243654163766

]

}

}

/\* 39 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497b7"),

"name" : "Apartment158",

"capacity" : 5.0,

"services" : [

"parking",

"pool",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.19775849388607,

51.6109386458246

]

}

}

/\* 40 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497ba"),

"name" : "Apartment161",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.198591579398745,

51.6010572752171

]

}

}

/\* 41 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497bd"),

"name" : "Apartment164",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.285401717700263,

51.5609479417578

]

}

}

/\* 42 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497c3"),

"name" : "Apartment170",

"capacity" : 3.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.0897990736864902,

51.6226324335796

]

}

}

/\* 43 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497c4"),

"name" : "Apartment171",

"capacity" : 1.0,

"services" : [

"parking",

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.0832487331433245,

51.5762995143592

]

}

}

/\* 44 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497c7"),

"name" : "Apartment174",

"capacity" : 3.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.0708093952940817,

51.5869348848515

]

}

}

/\* 45 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497ca"),

"name" : "Apartment177",

"capacity" : 2.0,

"services" : [

"wifi",

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.00210892778178529,

51.3389818233006

]

}

}

/\* 46 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497d2"),

"name" : "Apartment185",

"capacity" : 5.0,

"services" : [

"wifi",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.0891392811291635,

51.669430037907

]

}

}

/\* 47 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497d4"),

"name" : "Apartment187",

"capacity" : 2.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.143557123659126,

51.335694619013

]

}

}

/\* 48 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497d5"),

"name" : "Apartment188",

"capacity" : 3.0,

"services" : [

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

-0.232841622021538,

51.4123698748099

]

}

}

/\* 49 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497d7"),

"name" : "Apartment190",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.389901447950274,

51.5372562355145

]

}

}

/\* 50 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf88497d9"),

"name" : "Apartment192",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

-0.155028153591894,

51.6569530206308

]

}

}

db.apartments.find( { location: { $geoWithin: { $geometry: greaterlondon }}}).explain("executionStats")

\* 1 \*/

{

"queryPlanner" : {

"plannerVersion" : 1,

"namespace" : "airbdb.apartments",

"indexFilterSet" : false,

"parsedQuery" : {

"location" : {

"$geoWithin" : {

"$geometry" : {

"type" : "MultiPolygon",

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}

}

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"winningPlan" : {

"stage" : "COLLSCAN",

"filter" : {

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"type" : "MultiPolygon",

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51.485877

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}

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0.214128,

51.496039

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[

0.210307,

51.485877

]

]

]

]

}

}

}

},

"nReturned" : 12280,

"executionTimeMillisEstimate" : 33,

"works" : 50002,

"advanced" : 12280,

"needTime" : 37721,

"needYield" : 0,

"saveState" : 390,

"restoreState" : 390,

"isEOF" : 1,

"direction" : "forward",

"docsExamined" : 50000

}

},

"serverInfo" : {

"host" : "debian",

"port" : 27017,

"version" : "4.2.3",

"gitVersion" : "6874650b362138df74be53d366bbefc321ea32d4"

},

"ok" : 1.0

}

#Con índice

db.apartments.createIndex({ location: "2dsphere"})

db.apartments.find( { location: { $geoWithin: { $geometry: greaterlondon }}})

/\* 1 \*/

{

"\_id" : ObjectId("5eb425cf30e24a3cf8854238"),

"name" : "Apartment43807",

"capacity" : 5.0,

"services" : [

"wifi",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00391883997736486,

51.6333337489664

]

}

}

/\* 2 \*/

{

"\_id" : ObjectId("5eb425d530e24a3cf88555cf"),

"name" : "Apartment48822",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.00799763456682845,

51.6341935283046

]

}

}

/\* 3 \*/

{

"\_id" : ObjectId("5eb425c630e24a3cf88524d0"),

"name" : "Apartment36279",

"capacity" : 2.0,

"services" : [

"parking",

"wifi",

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0125988248139267,

51.6290033266843

]

}

}

/\* 4 \*/

{

"\_id" : ObjectId("5eb425ca30e24a3cf88531f0"),

"name" : "Apartment39639",

"capacity" : 5.0,

"services" : [

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0143511759498776,

51.6265138852171

]

}

}

/\* 5 \*/

{

"\_id" : ObjectId("5eb425d230e24a3cf8854dec"),

"name" : "Apartment46803",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0153996605858665,

51.6299384439494

]

}

}

/\* 6 \*/

{

"\_id" : ObjectId("5eb425ab30e24a3cf884c6e4"),

"name" : "Apartment12235",

"capacity" : 2.0,

"services" : [

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0210897381985738,

51.6282627089166

]

}

}

/\* 7 \*/

{

"\_id" : ObjectId("5eb425b130e24a3cf884dd11"),

"name" : "Apartment17912",

"capacity" : 3.0,

"services" : [

"parking",

"wifi",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0227830936327706,

51.6260694571939

]

}

}

/\* 8 \*/

{

"\_id" : ObjectId("5eb425a130e24a3cf884a4fd"),

"name" : "Apartment3556",

"capacity" : 1.0,

"services" : [

"parking",

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0196582908347858,

51.6278331931775

]

}

}

/\* 9 \*/

{

"\_id" : ObjectId("5eb425d630e24a3cf8855979"),

"name" : "Apartment49760",

"capacity" : 2.0,

"services" : [

"pool",

"parking",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0179876236253262,

51.6241004335196

]

}

}

/\* 10 \*/

{

"\_id" : ObjectId("5eb425a730e24a3cf884ba3c"),

"name" : "Apartment8995",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0116651301411065,

51.6223488456768

]

}

}

/\* 11 \*/

{

"\_id" : ObjectId("5eb425b230e24a3cf884df71"),

"name" : "Apartment18520",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.00968565597052362,

51.6206429279634

]

}

}

/\* 12 \*/

{

"\_id" : ObjectId("5eb425b930e24a3cf884f7f7"),

"name" : "Apartment24798",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.00664557770773022,

51.6233793958951

]

}

}

/\* 13 \*/

{

"\_id" : ObjectId("5eb425a430e24a3cf884aef8"),

"name" : "Apartment6111",

"capacity" : 4.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.00621477152289618,

51.6251659211628

]

}

}

/\* 14 \*/

{

"\_id" : ObjectId("5eb425b230e24a3cf884e0c6"),

"name" : "Apartment18861",

"capacity" : 1.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0117029401896495,

51.6237848864522

]

}

}

/\* 15 \*/

{

"\_id" : ObjectId("5eb425c530e24a3cf8852046"),

"name" : "Apartment35117",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0105487534099873,

51.6286324920305

]

}

}

/\* 16 \*/

{

"\_id" : ObjectId("5eb425d530e24a3cf88557b6"),

"name" : "Apartment49309",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0104066938867716,

51.6294055889613

]

}

}

/\* 17 \*/

{

"\_id" : ObjectId("5eb425c530e24a3cf8852025"),

"name" : "Apartment35084",

"capacity" : 2.0,

"services" : [

"wifi",

"parking",

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00778503785677109,

51.6267191241092

]

}

}

/\* 18 \*/

{

"\_id" : ObjectId("5eb4259f30e24a3cf8849f72"),

"name" : "Apartment2137",

"capacity" : 3.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.00654783450709884,

51.6263534539209

]

}

}

/\* 19 \*/

{

"\_id" : ObjectId("5eb425ae30e24a3cf884d1ce"),

"name" : "Apartment15029",

"capacity" : 4.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00469122140363254,

51.6284735401869

]

}

}

/\* 20 \*/

{

"\_id" : ObjectId("5eb425d530e24a3cf88556a6"),

"name" : "Apartment49037",

"capacity" : 5.0,

"services" : [

"breakfast",

"wifi",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00552099292727304,

51.6300055512429

]

}

}

/\* 21 \*/

{

"\_id" : ObjectId("5eb425a430e24a3cf884afd5"),

"name" : "Apartment6332",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.000343780650912673,

51.6235247600135

]

}

}

/\* 22 \*/

{

"\_id" : ObjectId("5eb425d130e24a3cf8854af1"),

"name" : "Apartment46040",

"capacity" : 3.0,

"services" : [

"pool",

"parking",

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00523714012935694,

51.6178979451012

]

}

}

/\* 23 \*/

{

"\_id" : ObjectId("5eb425a630e24a3cf884b6da"),

"name" : "Apartment8129",

"capacity" : 3.0,

"services" : [

"wifi",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0112818066873244,

51.6099175025875

]

}

}

/\* 24 \*/

{

"\_id" : ObjectId("5eb425b430e24a3cf884e7c8"),

"name" : "Apartment20655",

"capacity" : 2.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.00569738691783261,

51.6133023930624

]

}

}

/\* 25 \*/

{

"\_id" : ObjectId("5eb425b830e24a3cf884f536"),

"name" : "Apartment24093",

"capacity" : 4.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.000725246012862391,

51.6094347838275

]

}

}

/\* 26 \*/

{

"\_id" : ObjectId("5eb4259f30e24a3cf8849db1"),

"name" : "Apartment1688",

"capacity" : 3.0,

"services" : [

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00238100383955875,

51.6079933558201

]

}

}

/\* 27 \*/

{

"\_id" : ObjectId("5eb425bd30e24a3cf885051f"),

"name" : "Apartment28166",

"capacity" : 3.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.000609803759227368,

51.6057327438068

]

}

}

/\* 28 \*/

{

"\_id" : ObjectId("5eb425c830e24a3cf8852c00"),

"name" : "Apartment38119",

"capacity" : 4.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0010314084869737,

51.6000522861566

]

}

}

/\* 29 \*/

{

"\_id" : ObjectId("5eb425d330e24a3cf8855181"),

"name" : "Apartment47720",

"capacity" : 1.0,

"services" : [

"wifi",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00578505963263454,

51.6028131496381

]

}

}

/\* 30 \*/

{

"\_id" : ObjectId("5eb425c630e24a3cf885236d"),

"name" : "Apartment35924",

"capacity" : 2.0,

"services" : [

"pool",

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0079551990070893,

51.6018544138889

]

}

}

/\* 31 \*/

{

"\_id" : ObjectId("5eb4259c30e24a3cf8849725"),

"name" : "Apartment12",

"capacity" : 2.0,

"services" : [

"wifi",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00637284973296282,

51.5998378582935

]

}

}

/\* 32 \*/

{

"\_id" : ObjectId("5eb425c430e24a3cf8851c39"),

"name" : "Apartment34080",

"capacity" : 3.0,

"services" : [

"wifi",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00858300002425472,

51.6015758500362

]

}

}

/\* 33 \*/

{

"\_id" : ObjectId("5eb425c130e24a3cf8851401"),

"name" : "Apartment31976",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0108740490267658,

51.6009123035924

]

}

}

/\* 34 \*/

{

"\_id" : ObjectId("5eb425c730e24a3cf885264e"),

"name" : "Apartment36661",

"capacity" : 2.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0109647100340575,

51.6032125573115

]

}

}

/\* 35 \*/

{

"\_id" : ObjectId("5eb425b530e24a3cf884ea13"),

"name" : "Apartment21242",

"capacity" : 1.0,

"services" : [

"pool",

"parking",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.00725645948901277,

51.6054135033723

]

}

}

/\* 36 \*/

{

"\_id" : ObjectId("5eb425af30e24a3cf884d5e1"),

"name" : "Apartment16072",

"capacity" : 1.0,

"services" : [

"pool",

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0131534469552508,

51.6096080558177

]

}

}

/\* 37 \*/

{

"\_id" : ObjectId("5eb425cc30e24a3cf88537f8"),

"name" : "Apartment41183",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0131647750142148,

51.6083286374634

]

}

}

/\* 38 \*/

{

"\_id" : ObjectId("5eb425ac30e24a3cf884cbd7"),

"name" : "Apartment13502",

"capacity" : 5.0,

"services" : [

"parking",

"wifi",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0137549083802286,

51.607967911541

]

}

}

/\* 39 \*/

{

"\_id" : ObjectId("5eb425ca30e24a3cf8853341"),

"name" : "Apartment39976",

"capacity" : 1.0,

"services" : [

"breakfast",

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0152413125698251,

51.6093885476194

]

}

}

/\* 40 \*/

{

"\_id" : ObjectId("5eb425c830e24a3cf8852c06"),

"name" : "Apartment38125",

"capacity" : 2.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0168003460555546,

51.6084951740692

]

}

}

/\* 41 \*/

{

"\_id" : ObjectId("5eb425b730e24a3cf884f178"),

"name" : "Apartment23135",

"capacity" : 2.0,

"services" : [

"pool",

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0161871438960494,

51.6063953142819

]

}

}

/\* 42 \*/

{

"\_id" : ObjectId("5eb425c030e24a3cf8851151"),

"name" : "Apartment31288",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0188889869045874,

51.604483851071

]

}

}

/\* 43 \*/

{

"\_id" : ObjectId("5eb425bd30e24a3cf88506f3"),

"name" : "Apartment28634",

"capacity" : 1.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0192811061790388,

51.6080930405952

]

}

}

/\* 44 \*/

{

"\_id" : ObjectId("5eb425a930e24a3cf884bf69"),

"name" : "Apartment10320",

"capacity" : 1.0,

"services" : [

"breakfast",

"parking",

"wifi"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0189649673586315,

51.6120410601406

]

}

}

/\* 45 \*/

{

"\_id" : ObjectId("5eb425d130e24a3cf8854953"),

"name" : "Apartment45626",

"capacity" : 1.0,

"services" : [

"parking"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0128583537987025,

51.6106199802249

]

}

}

/\* 46 \*/

{

"\_id" : ObjectId("5eb425d530e24a3cf8855629"),

"name" : "Apartment48912",

"capacity" : 5.0,

"services" : [

"pool"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0164422980325443,

51.6127151927557

]

}

}

/\* 47 \*/

{

"\_id" : ObjectId("5eb425b730e24a3cf884f14a"),

"name" : "Apartment23089",

"capacity" : 2.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0140848332483544,

51.6195053496755

]

}

}

/\* 48 \*/

{

"\_id" : ObjectId("5eb425ca30e24a3cf8853079"),

"name" : "Apartment39264",

"capacity" : 2.0,

"services" : [

"parking",

"wifi",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0233861723146593,

51.6183883333256

]

}

}

/\* 49 \*/

{

"\_id" : ObjectId("5eb425ad30e24a3cf884ce4c"),

"name" : "Apartment14131",

"capacity" : 5.0,

"services" : [

"wifi",

"breakfast"

],

"location" : {

"type" : "Point",

"coordinates" : [

0.0247668799507027,

51.6166082176171

]

}

}

/\* 50 \*/

{

"\_id" : ObjectId("5eb425a030e24a3cf884a2b1"),

"name" : "Apartment2968",

"capacity" : 5.0,

"services" : [],

"location" : {

"type" : "Point",

"coordinates" : [

0.0238623454998171,

51.6157331477102

]

}

}

db.apartments.find( { location: { $geoWithin: { $geometry: greaterlondon }}}).explain("executionStats")

\* 1 \*/

{

"queryPlanner" : {

"plannerVersion" : 1,

"namespace" : "airbdb.apartments",

"indexFilterSet" : false,

"parsedQuery" : {

"location" : {

"$geoWithin" : {

"$geometry" : {

"type" : "MultiPolygon",

"coordinates" : [

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0.210307,

51.485877

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51.454328

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51.6236

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51.621417

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51.631734

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51.60783

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51.564298

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"gitVersion" : "6874650b362138df74be53d366bbefc321ea32d4"

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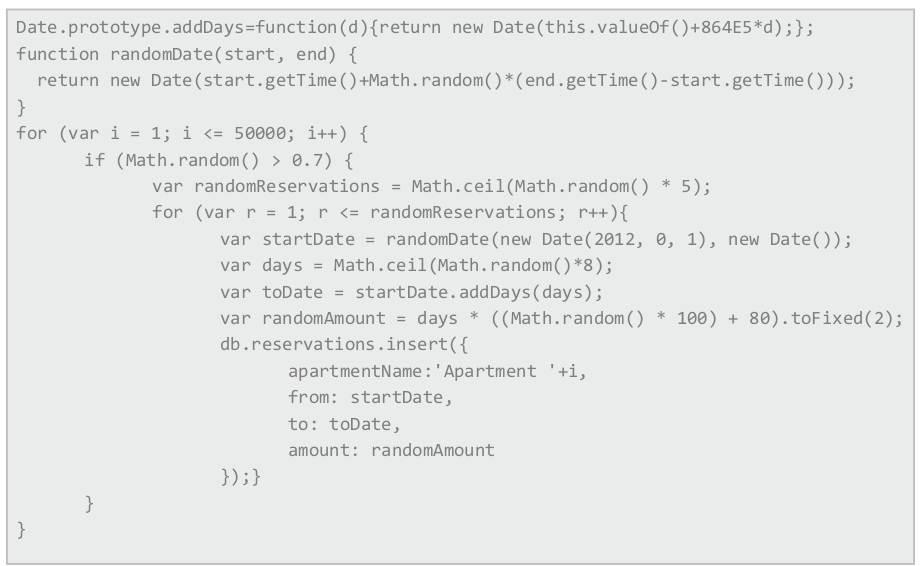
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**Parte 4: Aggregation Framework**

▶︎ MongoDB cuenta con un Aggregation Framework que brinda la posibilidad de hacer analíticaen tiempo real del estilo OLAP (Online Analytical Processing), de forma similar a otros productos específicos como Hadoop o MapReduce. En los siguientes ejercicios se verán algunos ejemplos de su aplicabilidad.

Al igual que en la parte 3, guarde en un archivo llamado ‘generadorReservas.js’ el siguiente

código JavaScript y ejecútelo con la función load()



*13. Obtenga 5 departamentos aleatorios de la colección.*

load('/home/bd2/Escritorio/generadorReservas.js')

db.getCollection('reservations').aggregate([{$sample: {size: 5}}])

/\* 1 \*/

{

"\_id" : ObjectId("5eb4292930e24a3cf886059d"),

"apartmentName" : "Apartment 48498",

"from" : ISODate("2017-10-29T02:49:03.204Z"),

"to" : ISODate("2017-11-02T02:49:03.204Z"),

"amount" : 413.88

}

/\* 2 \*/

{

"\_id" : ObjectId("5eb4291930e24a3cf885d1f9"),

"apartmentName" : "Apartment 33972",

"from" : ISODate("2016-08-02T02:38:36.568Z"),

"to" : ISODate("2016-08-08T02:38:36.568Z"),

"amount" : 485.88

}

/\* 3 \*/

{

"\_id" : ObjectId("5eb428fd30e24a3cf8857b34"),

"apartmentName" : "Apartment 9290",

"from" : ISODate("2014-01-11T09:25:26.147Z"),

"to" : ISODate("2014-01-19T09:25:26.147Z"),

"amount" : 720.4

}

/\* 4 \*/

{

"\_id" : ObjectId("5eb4291e30e24a3cf885e293"),

"apartmentName" : "Apartment 38544",

"from" : ISODate("2018-10-28T19:04:12.278Z"),

"to" : ISODate("2018-11-02T19:04:12.278Z"),

"amount" : 487.35

}

/\* 5 \*/

{

"\_id" : ObjectId("5eb428fd30e24a3cf8857b05"),

"apartmentName" : "Apartment 9224",

"from" : ISODate("2017-12-05T20:25:28.953Z"),

"to" : ISODate("2017-12-06T20:25:28.953Z"),

"amount" : 140.79

}

*14. Usando el framework de agregación, obtenga los departamentos que estén a 15km (o menos) del centro de la ciudad de Londres ([-0.127718, 51.507451]) y guárdelos en una nueva colección.*

db.apartments.aggregate( [

{

$geoNear: {

near: { type: "Point", coordinates: [-0.127718, 51.507451] },

spherical: true,

distanceField: "distance",

maxDistance : 1500,

}

}, { $out: "punto14" }

] )

*15. Para los departamentos hallados en el punto anterior, obtener una colección con cada departamento agregando un atributo reservas que contenga un array con todas sus reservas. Note que sólo es posible ligarlas por el nombre del departamento.*

*Si la consulta se empieza a tornar difícil de leer, se pueden ir guardando los agregadores en variables, que no son más que objetos en formato JSON.*

db.punto14.aggregate([

{

$lookup:

{

from: "reservations",

localField: "name",

foreignField: "apartmentName",

as: "reservas"

}

},{ $out: "punto15" }

])

*16. Usando la colección del punto anterior, obtenga el promedio de precio pagado por reserva (precio completo, no dividir por la cantidad de noches) de cada departamento.*

db.punto15.aggregate([

{ $unwind: "$reservas"}, { $group: { \_id: { name: "$name" }, averageReservationPrice: { $avg: "$reservas.amount" } }}])