

MONGODB - ANALYZING QUERIES

https://www.tutorialspoint.com/mongodb/mongodb_analyzing_queries.htm

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Analyzing queries is a very important aspect of measuring how effective the database and indexing design is. We will learn about the frequently used **\$explain** and **\$hint** queries.

Using \$explain

The **\$explain** operator provides information on the query, indexes used in a query and other statistics. It is very useful when analyzing how well your indexes are optimized.

In the last chapter, we had already created an index for the **users** collection on fields **gender** and **user_name** using the following query –

```
>db.users.ensureIndex({gender:1,user_name:1})
```

We will now use **\$explain** on the following query –

```
>db.users.find({gender:"M"},{user_name:1,_id:0}).explain()
```

The above explain query returns the following analyzed result –

```
{
  "cursor" : "BtreeCursor gender_1_user_name_1",
  "isMultiKey" : false,
  "n" : 1,
  "nscannedObjects" : 0,
  "nscanned" : 1,
  "nscannedObjectsAllPlans" : 0,
  "nscannedAllPlans" : 1,
  "scanAndOrder" : false,
  "indexOnly" : true,
  "nYields" : 0,
  "nChunkSkips" : 0,
  "millis" : 0,
  "indexBounds" : {
    "gender" : [
      [
        "M",
        "M"
      ]
    ],
    "user_name" : [
      [
        {
          "$minElement" : 1
        },
        {
          "$maxElement" : 1
        }
      ]
    ]
  }
}
```

```
}  
  ]  
}
```

We will now look at the fields in this result set –

- The true value of **indexOnly** indicates that this query has used indexing.
- The **cursor** field specifies the type of cursor used. BTreeCursor type indicates that an index was used and also gives the name of the index used. BasicCursor indicates that a full scan was made without using any indexes.
- **n** indicates the number of documents matching returned.
- **nscannedObjects** indicates the total number of documents scanned.
- **nscanned** indicates the total number of documents or index entries scanned.

Using \$hint

The **\$hint** operator forces the query optimizer to use the specified index to run a query. This is particularly useful when you want to test performance of a query with different indexes. For example, the following query specifies the index on fields **gender** and **user_name** to be used for this query –

```
>db.users.find({gender:"M"},{user_name:1,_id:0}).hint({gender:1,user_name:1})
```

To analyze the above query using \$explain –

```
>db.users.find({gender:"M"},{user_name:1,_id:0}).hint({gender:1,user_name:1}).explain()
```