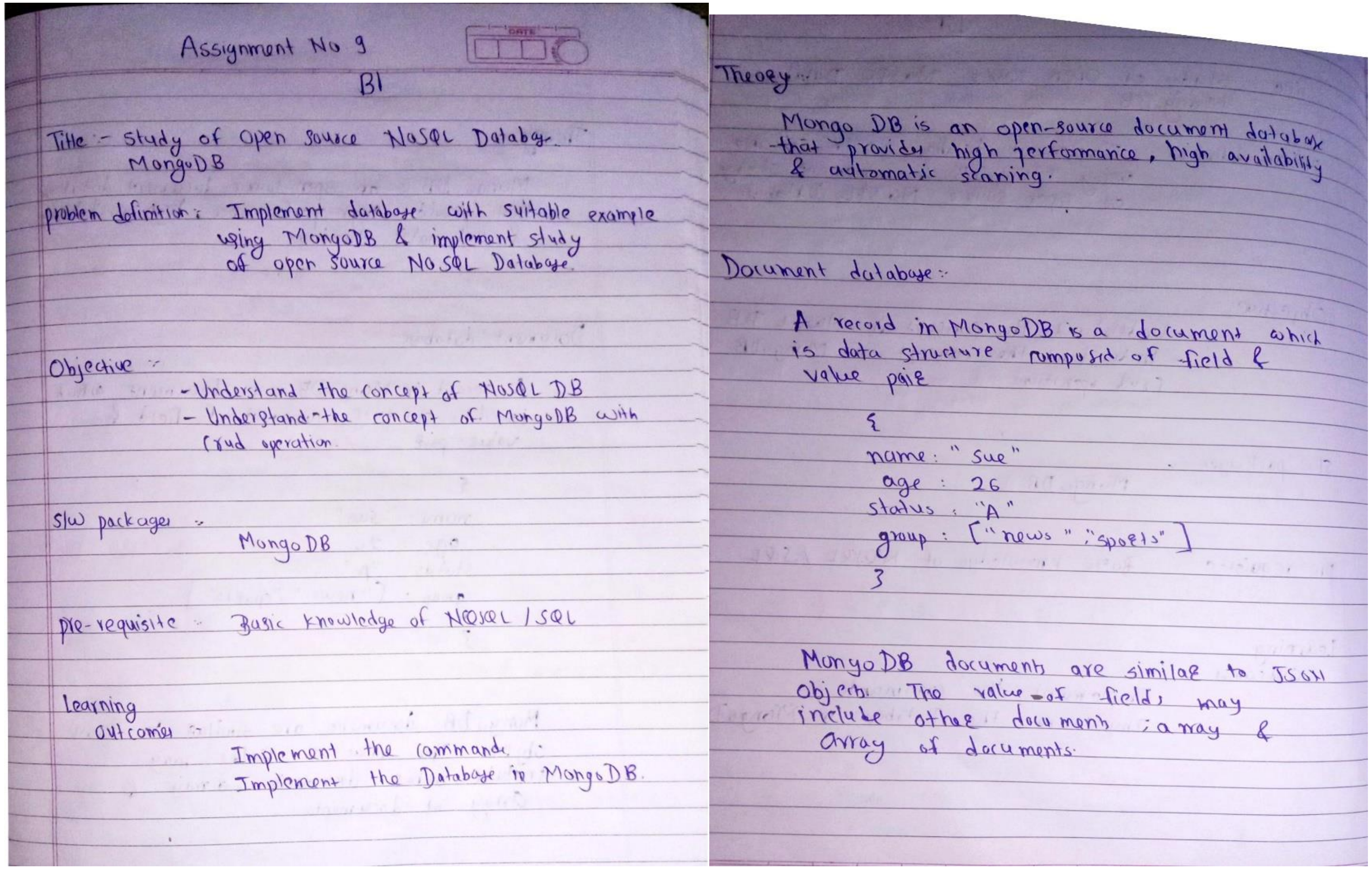
Roll No:- 31384

MongoDB B-1 Assignment Write-Ups :-



Assignment No 9

B1

Title :- Study of open source NoSQL Databaye.
MongoDB

problem definition : Implement databaye with suitable example using MongoDB & implement study of open source NoSQL Databaye.

Objective :-
- Understand the concept of NoSQL DB
- Understand the concept of MongoDB with crud operation

S/W packages :- MongoDB

pre-requisite :- Basic knowledge of NOSQL / SQL

Learning outcomes :-
Implement the commands.
Implement the Database in MongoDB.

Theory :-

Mongo DB is an open-source document database that provides high performance, high availability & automatic scaning.

Document database :-

A record in MongoDB is a document which is data structure composed of field & value pair

```
{
name : " sue "
 age : 26
status : "A"
group : [" news " ;" sports "]
}
```

MongoDB documents are similar to JSON objects. The value of fields may include other documents ; array & array of documents.

Features of MongoDB :-

i) Document oriented :-

MongoDB stores the main subject in the minimal number of documents, Not by breaking it up into multiple relational structure

ii) Indexing :-

without indexing, a database would have to save every document of collection. but it process huge data in less time.

iii) Scalability :-

MongoDB scales horizontally using Sharding. Data is partitioned into data chunks using shared key.

iv) Replication & high availability :-

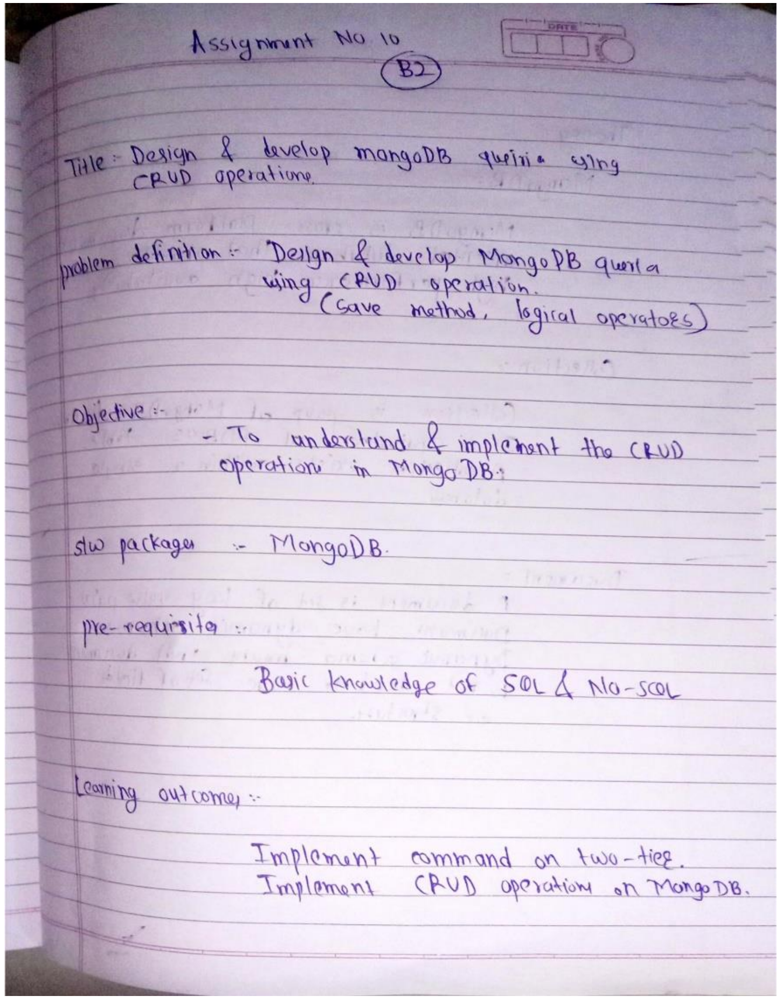
MongoDB increase the data avialability with multiple copies of data on different server.

v) Aggregation :-

Aggregation operation process data record & returns computed results

Conclusion : We studied the NO-SQL database & installed MongoDB.

MongoDB B-2 Assignment Write-Ups Code and Screenshots:-



Assignment No 10

B2

Title : Design & develop mongoDB queries using CRUD operations.

problem definition :- Design & develop MongoDB queries using CRUD operation.
(Save method, logical operators)

Objective :-
- To understand & implement the CRUD operation in Mongo DB.

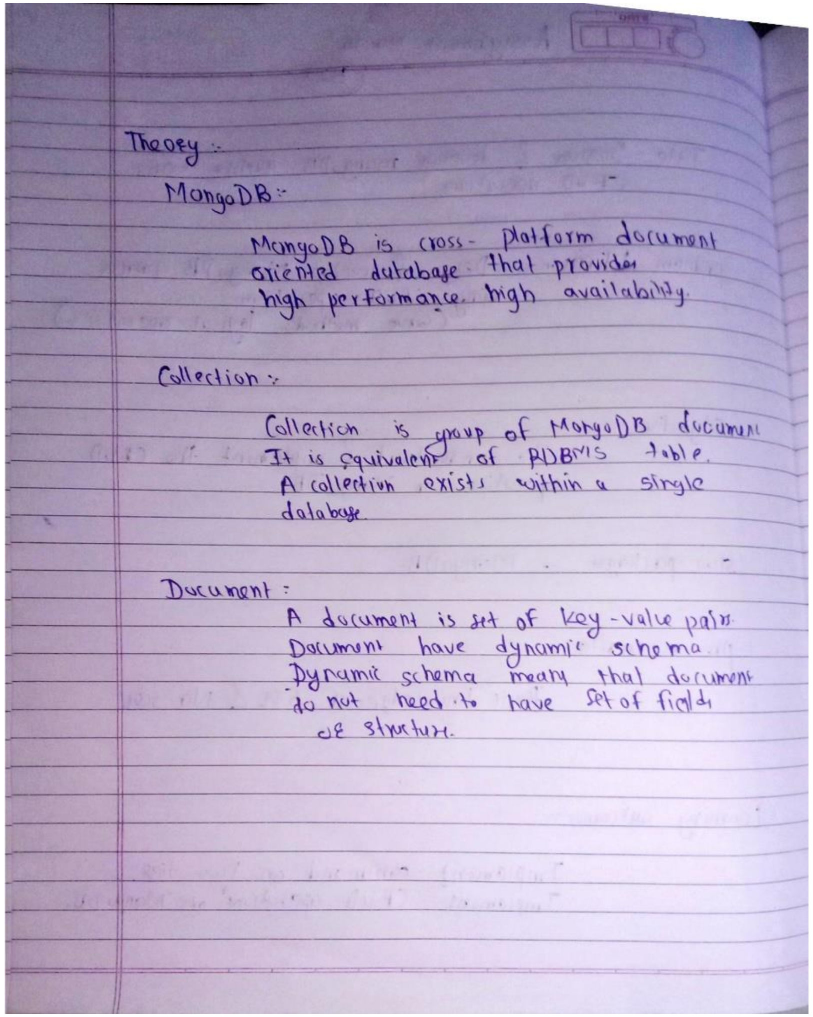
s/w packages :- MongoDB.

pre-requisite :-

Basic knowledge of SQL & No-SQL

Learning outcomes :-

Implement command on two-tier.
Implement CRUD operations on MongoDB.



Theory :-

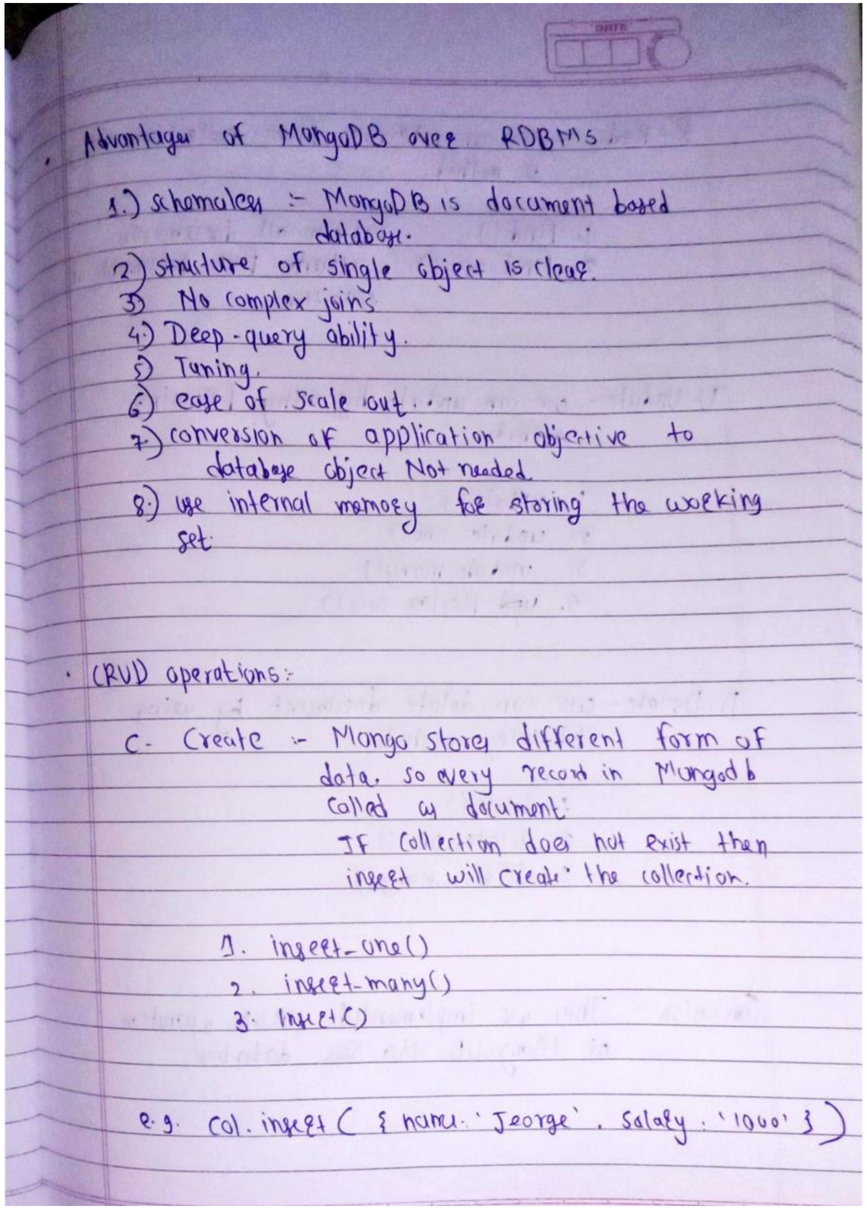
MongoDB :-

MongoDB is cross-platform document oriented database that provides high performance. high availability.

Collection :-

Collection is group of MongoDB document
It is equivalent of RDBMS table.
A collection exists within a single database.

Document :
A document is set of key-value pairs.
Document have dynamic schema.
Dynamic schema means that document do not need to have set of fields or structure.



- Advantages of MongoDB over RDBMS.

1.) schemaless :- MongoDB is document based database.

2) structure of single object is clear.

3) No complex joins

4) Deep-query ability.

5) Tuning.

6) ease of scale out.

7) conversion of application objective to database object Not needed.

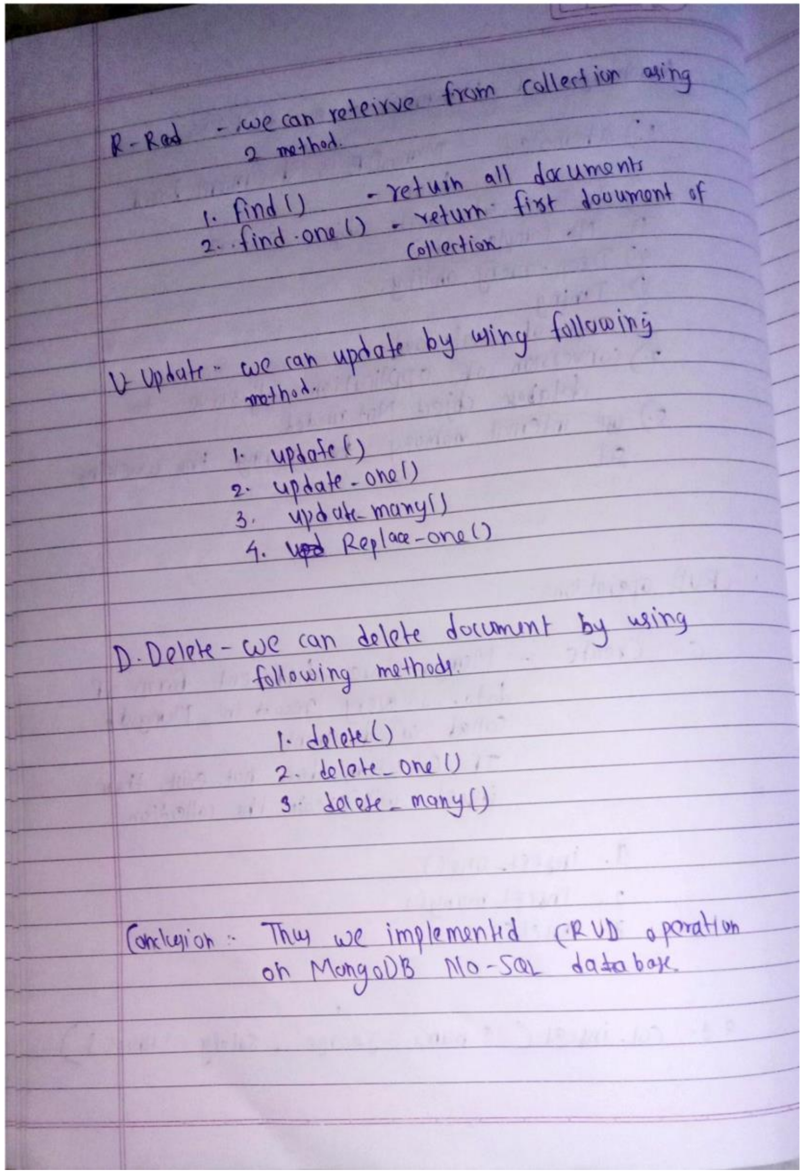
8) use internal memory for storing the working set.

- CRUD operations:-

C. Create :- Mongo stores different form of data, so every record in Mongodb called as document.
IF collection does not exist then insert will create the collection.

1. insert-one()
2. insert-many()
3. Insert()

e.g. col. insert ({ name: 'Jeorge', salary : '1000' })



R-Read - we can reteirve from collection using 2 method.

1. find() - return all documents
2. find-one() - return first document of collection

U-Update - we can update by using following method.

1. update()
2. update-one()
3. update-many()
4. ~~upd~~ Replace-one()

D. Delete - we can delete document by using following methods.

1. delete()
2. delete_one()
3. delete_many()

Conclusion :- Thus we implemented CRUD operation on MongoDB No-SQL database.

Code :-

```
db.createCollection("books")

db.books.insert({title:"xyzb",user_name:"harsh8",comments:"balbla",description:"monogo db is no sql",by:"myfav",tags:["mongodb","mongus"],likes:1123})


db.books.insert({title:"xyzd",user_name:"harsh10",comments:"Write",description:"monogo db is no sql",by:"javapoint",tags:["mongodb","mongus"],likes:3223})


db.books.insert({title:"xyze",user_name:"harsh11",comments:"Read",description:"monogo db is no sql",by:"W3schools",tags:["mongodb","mongus"],likes:2312})


db.books.insert({title:"xyzb",user_name:"harsh8",comments:"balbla,description:"monogo db is no sql",by:"myfav",tags:["mongodb","mongus"],likes:1123})


db.books.find({$or:[{title:"xyzb"},{by:"W3schools"}]}).pretty()

db.books.find({$and:[{title:"xyze"},{by:"W3schools"}]}).pretty()

db.books.find({"likes":{$gt:2000}}).pretty()


db.books.update({title:'xyzc'},{$set:{title:'pqr'}}).pretty()

db.books.remove({title:'pqr'})

db.books.find({title:'xyza'}).pretty().limit(2)
db.books.find({user_name:'harsh5'}).pretty().limit(3).skip(1)

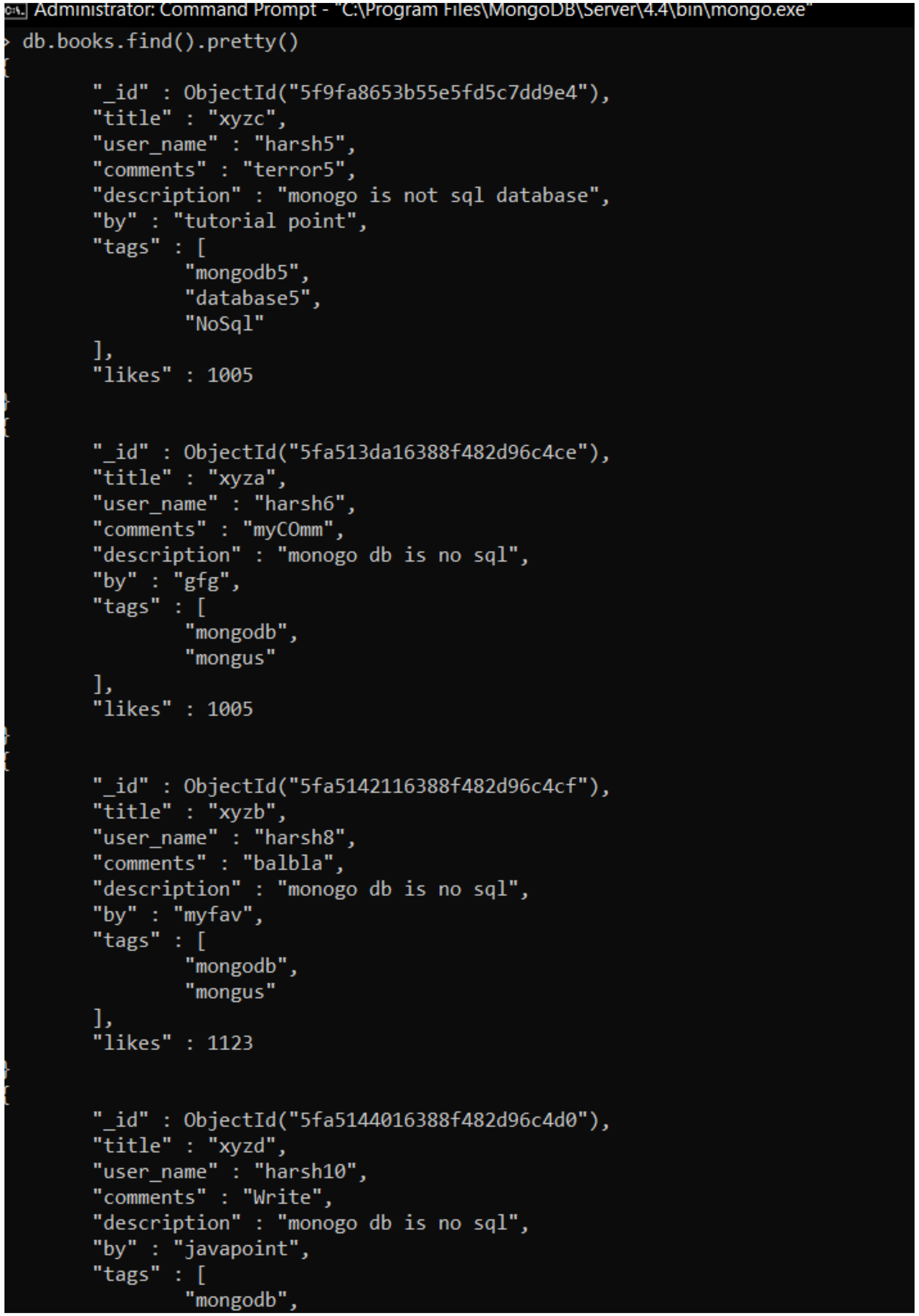
db.books.find({},{"likes":1}).sort({"likes":-1})

db.books.find({},{"likes":1}).sort({"likes":1})

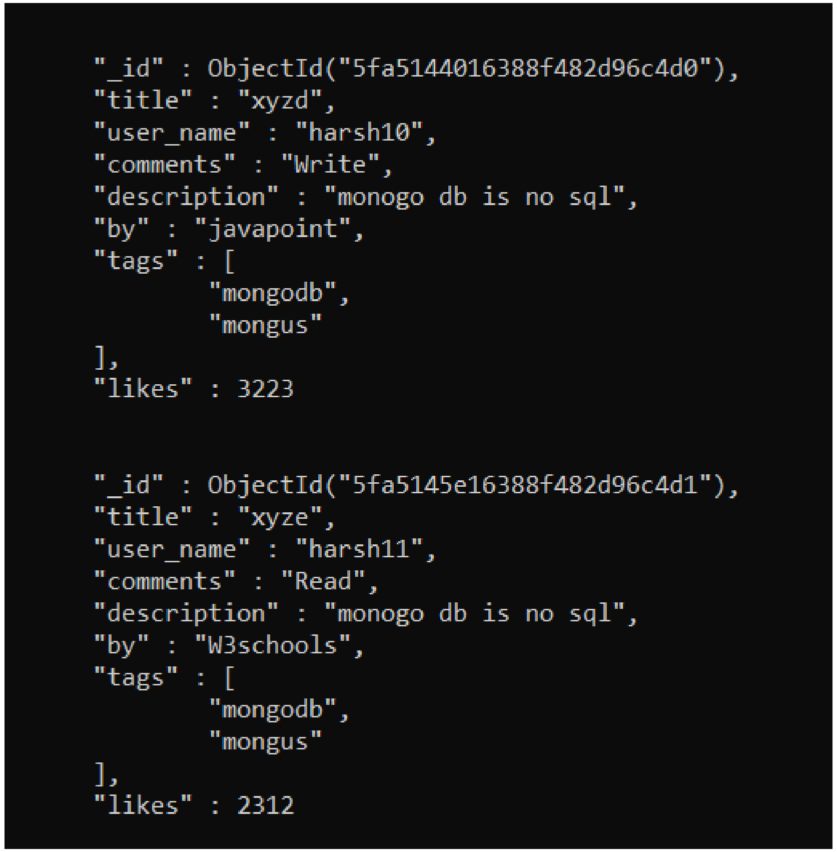

db.books.save({title:'xyzSaved','user_name':'harsh545',comments:'terror5',description:'monogo is not sql database',by:'tutorial
point',tags:['mongodb5','database5','NoSql'],likes:1005})
```

ScreenShots :-

1. Insert Five records in Books Collection and show result.


Administrator: Command Prompt - "C:\Program Files\MongoDB\Server\4.4\bin\mongo.exe"

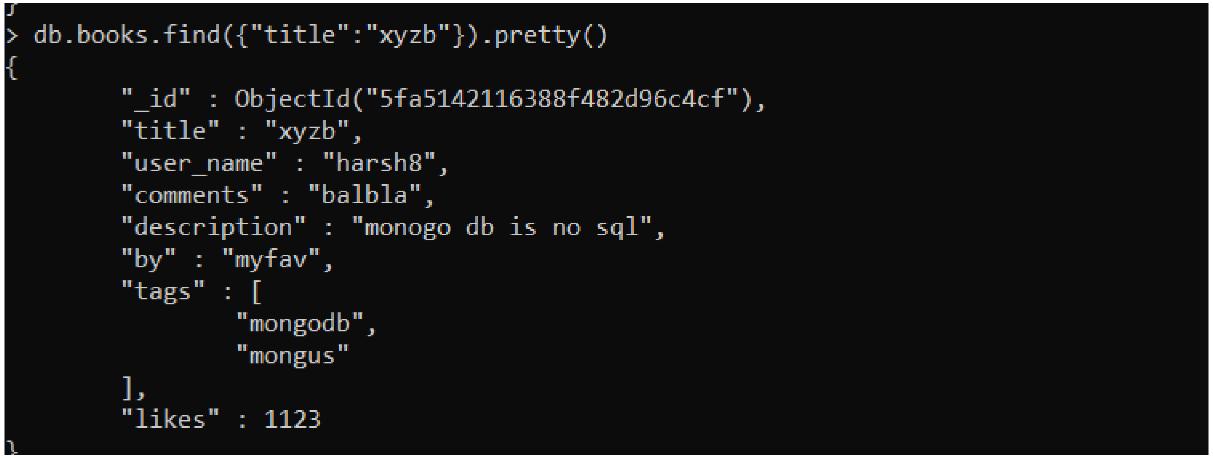
```
> db.books.find().pretty()
{
        "_id" : ObjectId("5f9fa8653b55e5fd5c7dd9e4"),
        "title" : "xyzc",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa513da16388f482d96c4ce"),
        "title" : "xyza",
        "user_name" : "harsh6",
        "comments" : "myCOmm",
        "description" : "monogo db is no sql",
        "by" : "gfg",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa5142116388f482d96c4cf"),
        "title" : "xyzb",
        "user_name" : "harsh8",
        "comments" : "balbla",
        "description" : "monogo db is no sql",
        "by" : "myfav",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 1123
}
{
        "_id" : ObjectId("5fa5144016388f482d96c4d0"),
        "title" : "xyzd",
        "user_name" : "harsh10",
        "comments" : "Write",
        "description" : "monogo db is no sql",
        "by" : "javapoint",
        "tags" : [
                "mongodb",
```



```
    "_id" : ObjectId("5fa5144016388f482d96c4d0"),
    "title" : "xyzd",
    "user_name" : "harsh10",
    "comments" : "Write",
    "description" : "monogo db is no sql",
    "by" : "javapoint",
    "tags" : [
            "mongodb",
            "mongus"
    ],
    "likes" : 3223

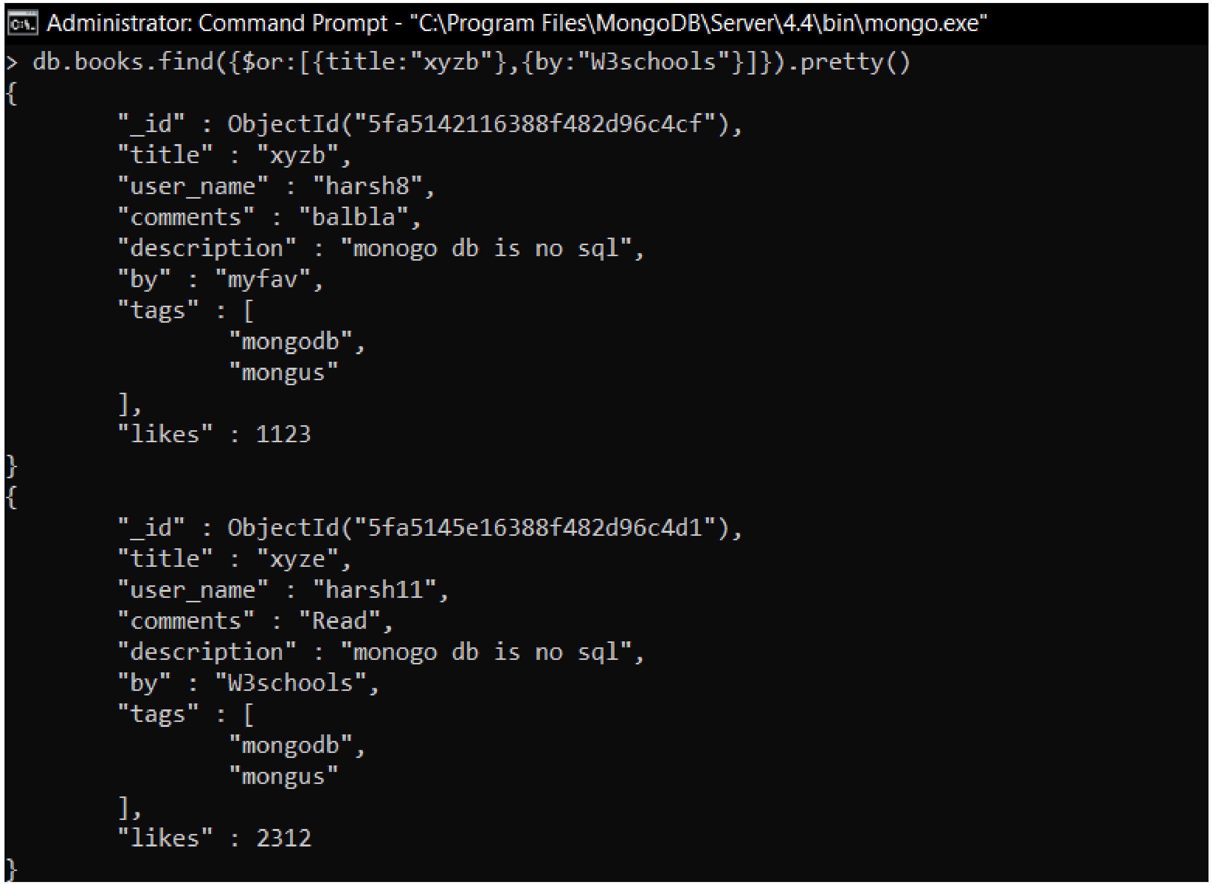

    "_id" : ObjectId("5fa5145e16388f482d96c4d1"),
    "title" : "xyze",
    "user_name" : "harsh11",
    "comments" : "Read",
    "description" : "monogo db is no sql",
    "by" : "W3schools",
    "tags" : [
            "mongodb",
            "mongus"
    ],
    "likes" : 2312
```

2. Find the record whose title is “xyzb”



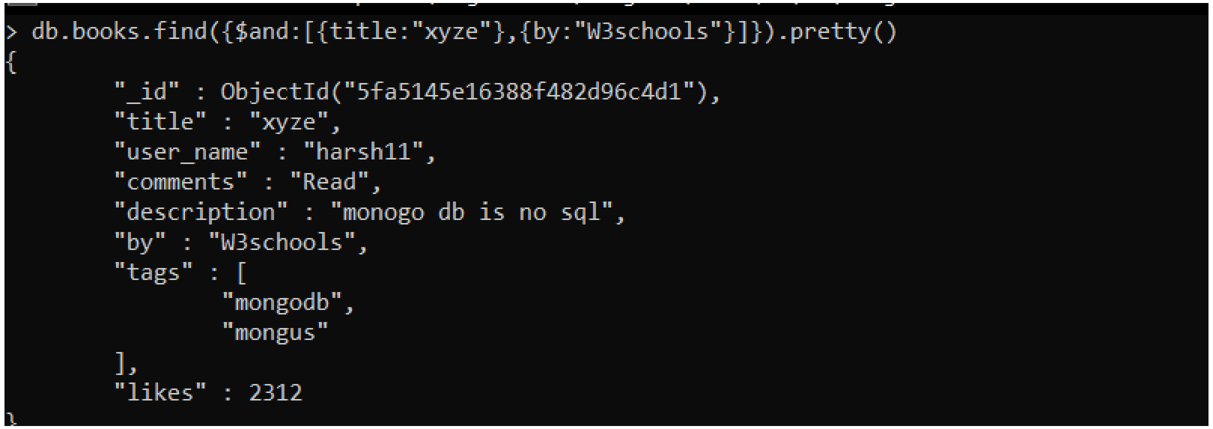
```
}
> db.books.find({"title":"xyzb"}).pretty()
{
        "_id" : ObjectId("5fa5142116388f482d96c4cf"),
        "title" : "xyzb",
        "user_name" : "harsh8",
        "comments" : "balbla",
        "description" : "monogo db is no sql",
        "by" : "myfav",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 1123
}
```

3. Find record whose title is xyzb or written by W3schools (OR operator)


Administrator: Command Prompt - "C:\Program Files\MongoDB\Server\4.4\bin\mongo.exe"

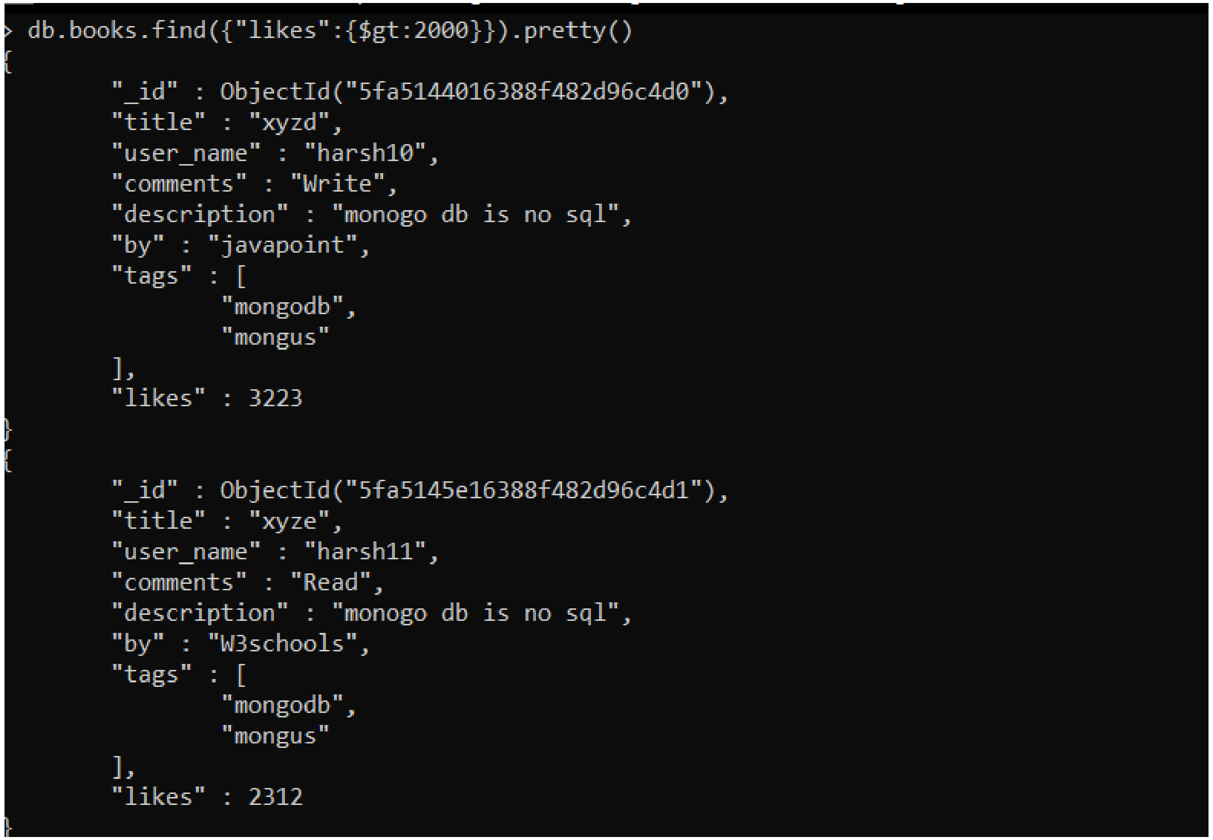
```
> db.books.find({$or:[{title:"xyzb"},{by:"W3schools"}]}).pretty()
{
        "_id" : ObjectId("5fa5142116388f482d96c4cf"),
        "title" : "xyzb",
        "user_name" : "harsh8",
        "comments" : "balbla",
        "description" : "monogo db is no sql",
        "by" : "myfav",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 1123
}
{
        "_id" : ObjectId("5fa5145e16388f482d96c4d1"),
        "title" : "xyze",
        "user_name" : "harsh11",
        "comments" : "Read",
        "description" : "monogo db is no sql",
        "by" : "W3schools",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 2312
}
```

4. Find record whose title is xyze and written by W3schools (AND operator)



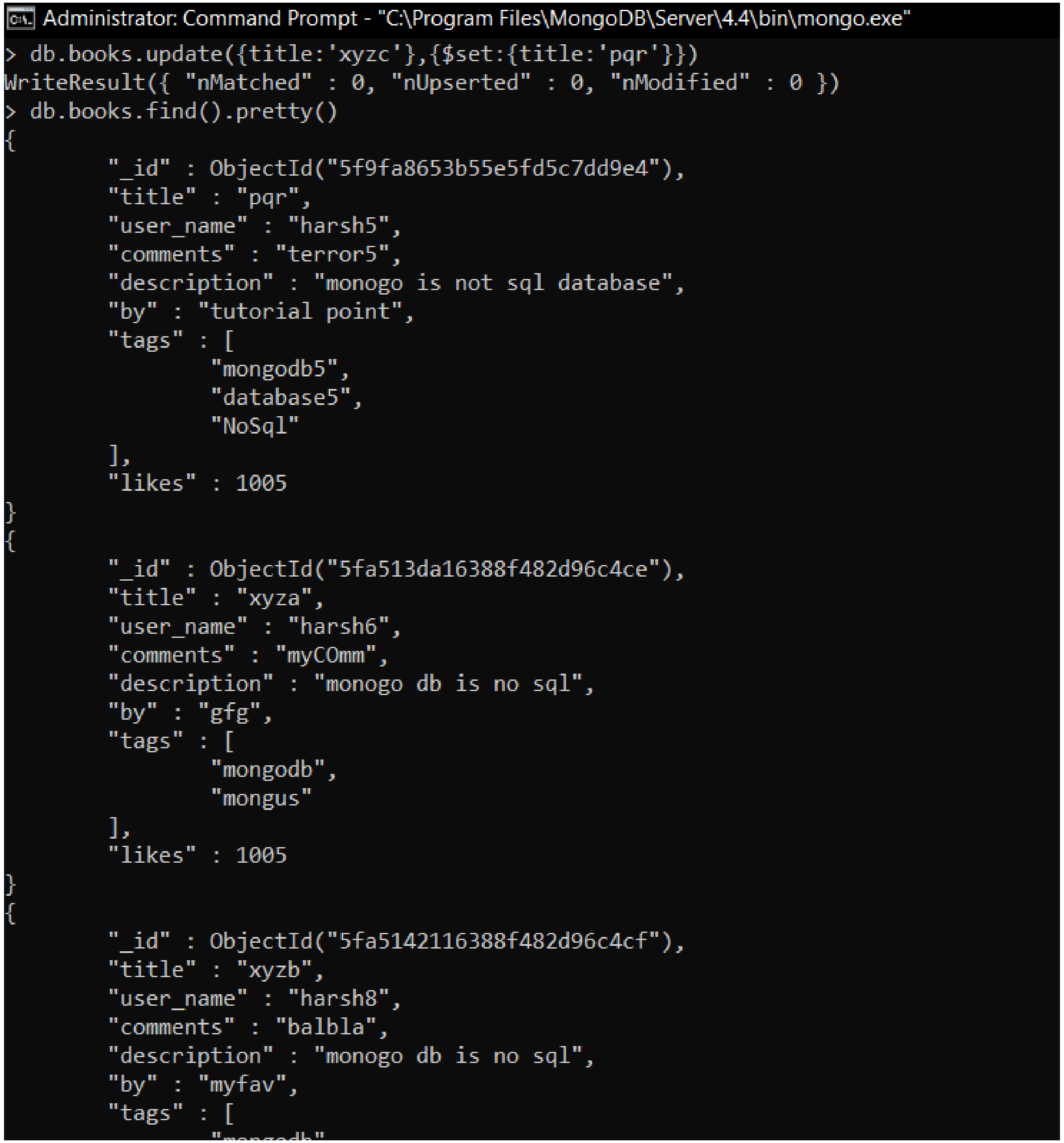
```
> db.books.find({$and:[{title:"xyze"},{by:"W3schools"}]}).pretty()
{
        "_id" : ObjectId("5fa5145e16388f482d96c4d1"),
        "title" : "xyze",
        "user_name" : "harsh11",
        "comments" : "Read",
        "description" : "monogo db is no sql",
        "by" : "W3schools",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 2312
}
```

5. Display all the documents whose like is greater than 2000.



```
> db.books.find({"likes":{$gt:2000}}).pretty()
{
        "_id" : ObjectId("5fa5144016388f482d96c4d0"),
        "title" : "xyzd",
        "user_name" : "harsh10",
        "comments" : "Write",
        "description" : "monogo db is no sql",
        "by" : "javapoint",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 3223
}
{
        "_id" : ObjectId("5fa5145e16388f482d96c4d1"),
        "title" : "xyze",
        "user_name" : "harsh11",
        "comments" : "Read",
        "description" : "monogo db is no sql",
        "by" : "W3schools",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 2312
}
```

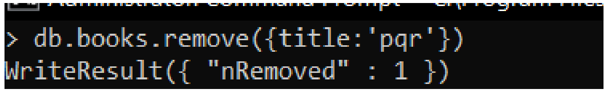
6. Update the title



Administrator: Command Prompt - "C:\Program Files\MongoDB\Server\4.4\bin\mongo.exe"

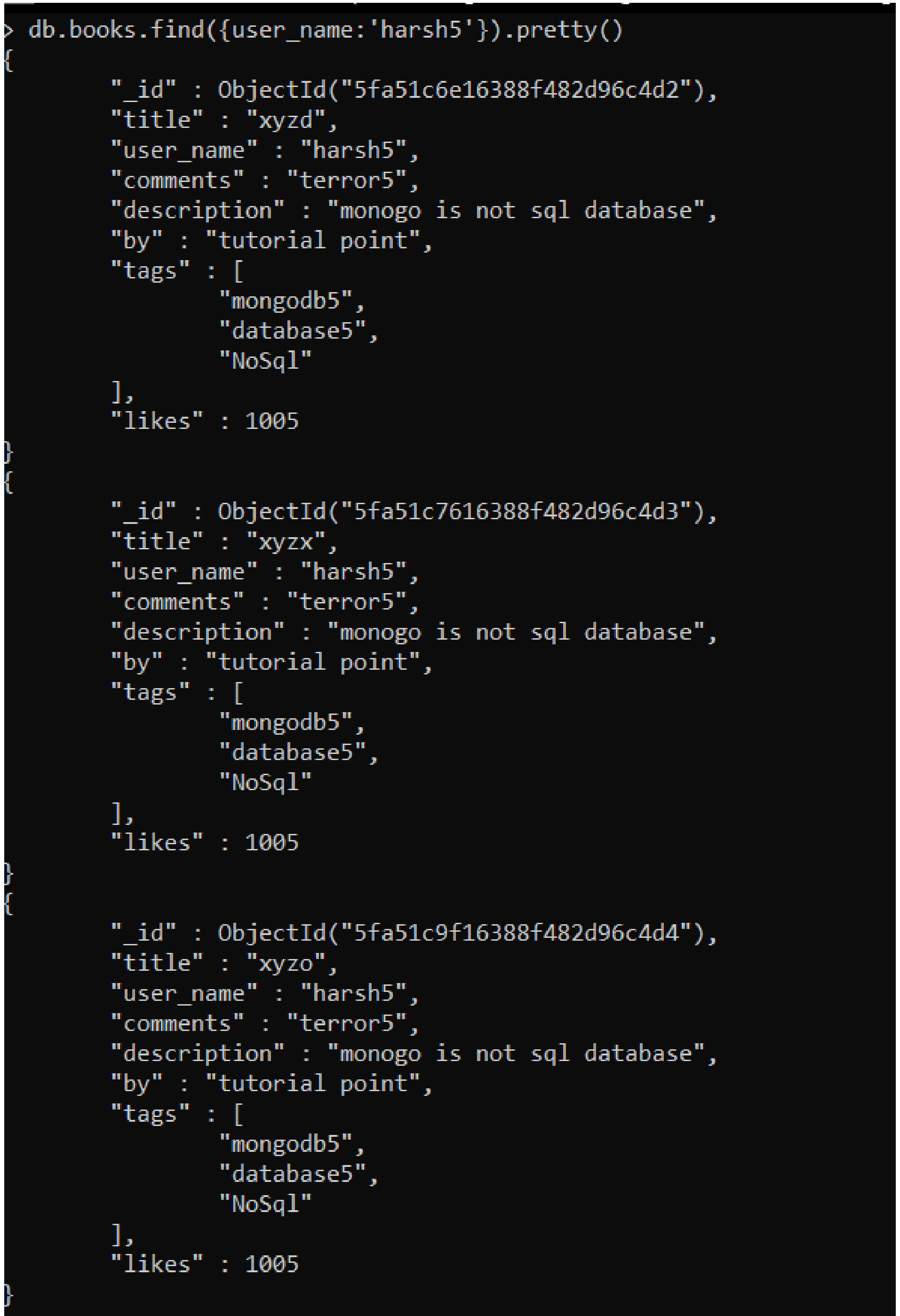
```
> db.books.update({title:'xyzc'},{$set:{title:'pqr'}})
WriteResult({ "nMatched" : 0, "nUpserted" : 0, "nModified" : 0 })
> db.books.find().pretty()
{
        "_id" : ObjectId("5f9fa8653b55e5fd5c7dd9e4"),
        "title" : "pqr",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa513da16388f482d96c4ce"),
        "title" : "xyza",
        "user_name" : "harsh6",
        "comments" : "myCOmm",
        "description" : "monogo db is no sql",
        "by" : "gfg",
        "tags" : [
                "mongodb",
                "mongus"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa5142116388f482d96c4cf"),
        "title" : "xyzb",
        "user_name" : "harsh8",
        "comments" : "balbla",
        "description" : "monogo db is no sql",
        "by" : "myfav",
        "tags" : [
                "mongodb"
```

7. Delete the document titled

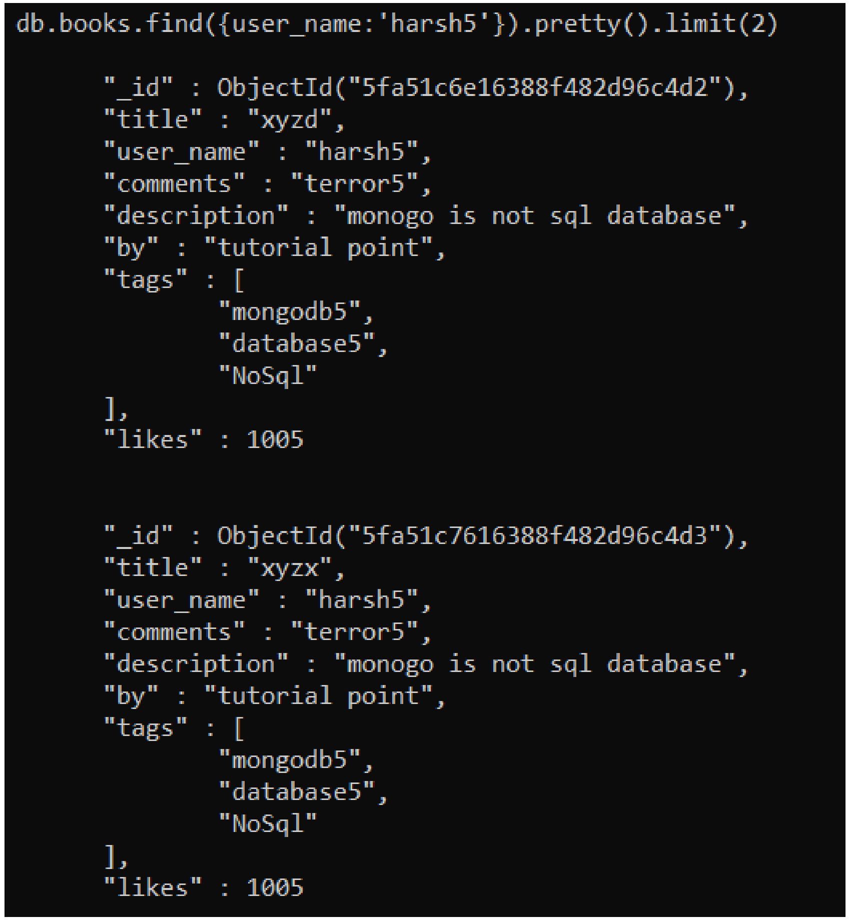


```
> db.books.remove({title:'pqr'})
WriteResult({ "nRemoved" : 1 })
```

8. Display exactly two documents written by ‘harsh5’.



```
> db.books.find({user_name:'harsh5'}).pretty()
{
        "_id" : ObjectId("5fa51c6e16388f482d96c4d2"),
        "title" : "xyzd",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa51c7616388f482d96c4d3"),
        "title" : "xyzx",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa51c9f16388f482d96c4d4"),
        "title" : "xyzo",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
```

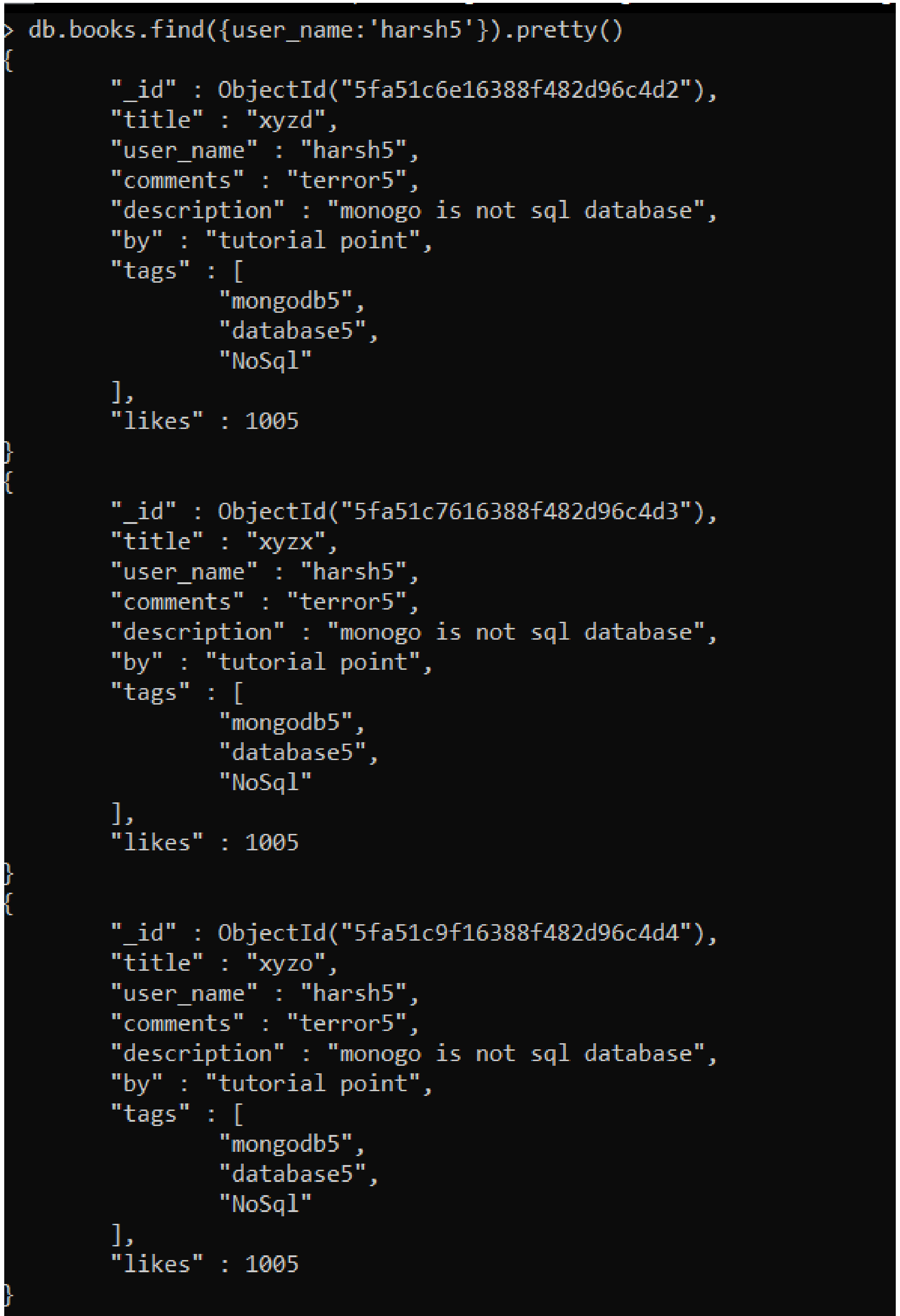


```
db.books.find({user_name:'harsh5'}).pretty().limit(2)

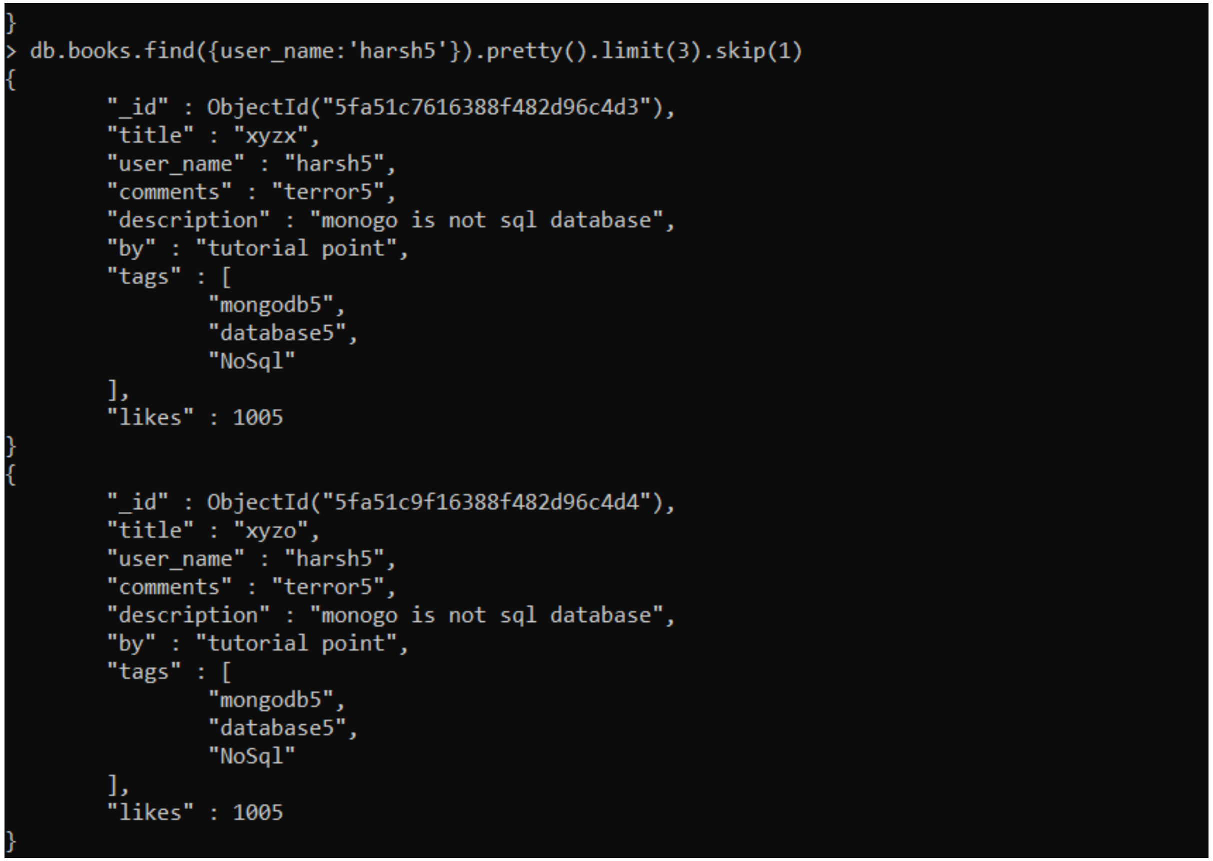
      "_id" : ObjectId("5fa51c6e16388f482d96c4d2"),
      "title" : "xyzd",
      "user_name" : "harsh5",
      "comments" : "terror5",
      "description" : "monogo is not sql database",
      "by" : "tutorial point",
      "tags" : [
              "mongodb5",
              "database5",
              "NoSql"
      ],
      "likes" : 1005


      "_id" : ObjectId("5fa51c7616388f482d96c4d3"),
      "title" : "xyzx",
      "user_name" : "harsh5",
      "comments" : "terror5",
      "description" : "monogo is not sql database",
      "by" : "tutorial point",
      "tags" : [
              "mongodb5",
              "database5",
              "NoSql"
      ],
      "likes" : 1005
```

9. Display the second document published by harsh5’.

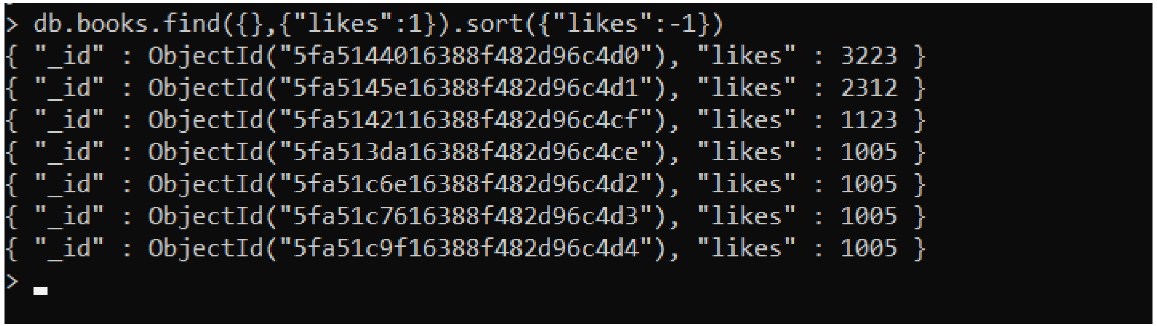


```
> db.books.find({user_name:'harsh5'}).pretty()
{
        "_id" : ObjectId("5fa51c6e16388f482d96c4d2"),
        "title" : "xyzd",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa51c7616388f482d96c4d3"),
        "title" : "xyzx",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa51c9f16388f482d96c4d4"),
        "title" : "xyzo",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
```

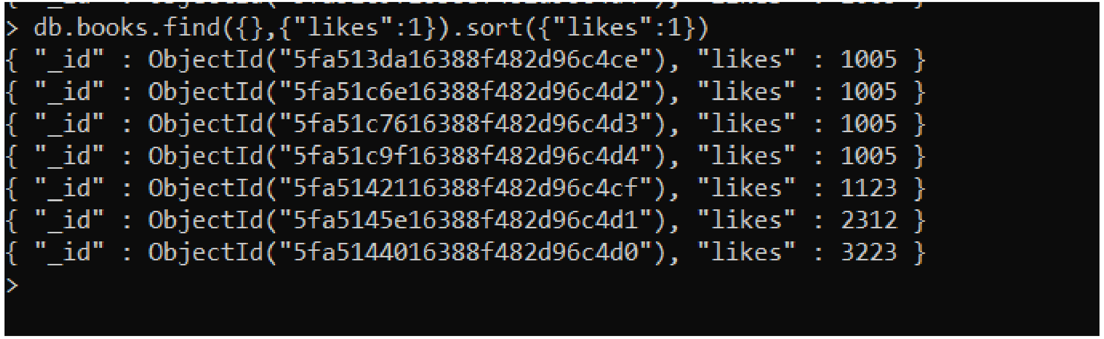


```
}
> db.books.find({user_name:'harsh5'}).pretty().limit(3).skip(1)
{
        "_id" : ObjectId("5fa51c7616388f482d96c4d3"),
        "title" : "xyzx",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
{
        "_id" : ObjectId("5fa51c9f16388f482d96c4d4"),
        "title" : "xyzo",
        "user_name" : "harsh5",
        "comments" : "terror5",
        "description" : "monogo is not sql database",
        "by" : "tutorial point",
        "tags" : [
                "mongodb5",
                "database5",
                "NoSql"
        ],
        "likes" : 1005
}
```

10. Display all the books in the sorted fashion.

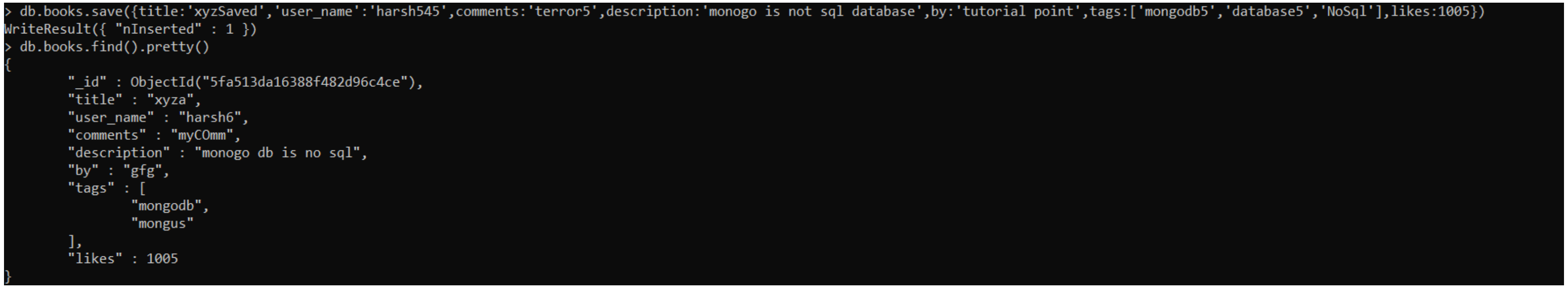


```
> db.books.find({},{"likes":1}).sort({"likes":-1})
{ "_id" : ObjectId("5fa5144016388f482d96c4d0"), "likes" : 3223 }
{ "_id" : ObjectId("5fa5145e16388f482d96c4d1"), "likes" : 2312 }
{ "_id" : ObjectId("5fa5142116388f482d96c4cf"), "likes" : 1123 }
{ "_id" : ObjectId("5fa513da16388f482d96c4ce"), "likes" : 1005 }
{ "_id" : ObjectId("5fa51c6e16388f482d96c4d2"), "likes" : 1005 }
{ "_id" : ObjectId("5fa51c7616388f482d96c4d3"), "likes" : 1005 }
{ "_id" : ObjectId("5fa51c9f16388f482d96c4d4"), "likes" : 1005 }
> 
```



```
> db.books.find({},{"likes":1}).sort({"likes":1})
{ "_id" : ObjectId("5fa513da16388f482d96c4ce"), "likes" : 1005 }
{ "_id" : ObjectId("5fa51c6e16388f482d96c4d2"), "likes" : 1005 }
{ "_id" : ObjectId("5fa51c7616388f482d96c4d3"), "likes" : 1005 }
{ "_id" : ObjectId("5fa51c9f16388f482d96c4d4"), "likes" : 1005 }
{ "_id" : ObjectId("5fa5142116388f482d96c4cf"), "likes" : 1123 }
{ "_id" : ObjectId("5fa5145e16388f482d96c4d1"), "likes" : 2312 }
{ "_id" : ObjectId("5fa5144016388f482d96c4d0"), "likes" : 3223 }
>
```

11. Insert a document using save method



```
> db.books.save({title:'xyzSaved','user_name':'harsh545',comments:'terror5',description:'monogo is not sql database',by:'tutorial point',tags:['mongodb5','database5','NoSql'],likes:1005})
WriteResult({ "nInserted" : 1 })
> db.books.find().pretty()
{
        "_id" : ObjectId("5fa513da16388f482d96c4ce"),
        "title" : "xyza",
        "user_name" : "harsh6",
        "comments" : "myCOmm",
        "description" : "monogo db is no sql",
        "by" : "gfg",
        "tags" : [
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                "mongus"
        ],
        "likes" : 1005
}
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