Structured   SQL type

Fixed type of structure for data

ex

MySQL

H2

Oracle

MsSQL

..

sid	sname	sartist	
1	abcd	xyz	
2	bcde	mno	
3	mnop	xyz1	
4	aa	mno	
5	bbb	xyz	4.1

Un-structured   NoSQL type

Different types of structures for data

ex

mongodb

bkid	bn	aname	aage
B001	abcd	mc	24
B002	xyz	xy	35
B003	mnop	mc	24
B004	xx	xy	35

Book

bkid	bn	aid	aid	aname	aage
B001	abcd	A1	A1	mc	24
B002	xyz	A2	A2	xy	35

Complete book data

bkid	bn	aname	aage
B001	abcd	mc	24
B002	xyz	xy	35
B003	mnop	mc	24
B004	xx	xy	35

```
            Books table
            bookid    name
r1          b001      abcd
r2          b002      abcd
r3          b003      abcd
r4          b004      xyz                4.1
                             error
```

use mydb;

        here, mydb is database name

        Opens mydb if mydb is exsiting

        Creates and opens mydb if mydb not existing

show dbs;

        displays all databases

        Note: empty dbs are not visible

show collections;

        dislays collections in current db

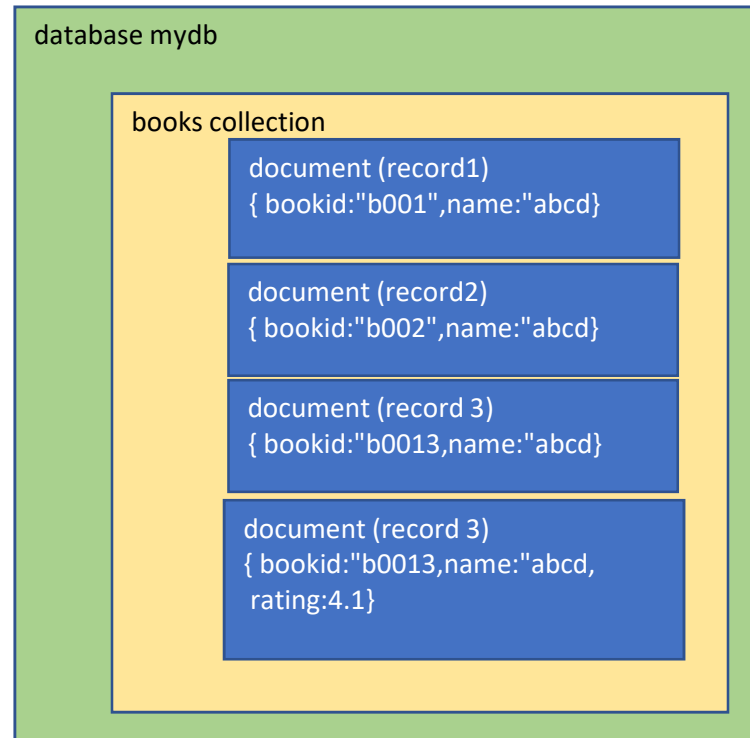   expty collecitons are not shown

db.COLLECTION_NAME.insertOne({ });

        { } must hold ond json object

```
 db.book.insertOne(
 {bookId:1,bookName:"Spirit of C", bookSubjet:"C Language", bookPrice:123, bookStock:23}
 );
```

db.COLLECTION_NAME.find()

        Retrieves data from collection

database mydb

    books collection

> document (record1)
> { bookid:"b001",name:"abcd}

> document (record2)
> { bookid:"b002",name:"abcd}

> document (record 3)
> { bookid:"b0013,name:"abcd}

> document (record 3)
> { bookid:"b0013,name:"abcd,
> rating:4.1}

```
> db.book.find();
{ "_id" : ObjectId("634ceeb4d99311e4a37391be"), "bookId" : 1, "bookName" : "Spirit of C"
, "bookSubjet" : "C Language", "bookPrice" : 123, "bookStock" : 23 }
```

db.COLLECTION_NAME.insertMany([{ }, { }, { }]);

Inserts multiple documents into collection

```
db.book.insertMany([
{bookId:2,bookName:"Applets in Java", bookSubjet:"Java", bookPrice:351, bookStock:31},
{bookId:3,bookName:"Beans in Spring", bookSubjet:"Spring", bookPrice:456, bookStock:15},
{bookId:4,bookName:"Forms in HTML", bookSubjet:"HTML", bookPrice:532, bookStock:17},
{bookId:5,bookName:"Graphics in C", bookSubjet:"C Language", bookPrice:231, bookStock:8},
{bookId:6,bookName:"Threads in Java", bookSubjet:"Java", bookPrice:398, bookStock:21},
{bookId:7,bookName:"Styles in HTML", bookSubjet:"HTML", bookPrice:674, bookStock:37},
{bookId:8,bookName:"Join in SQL", bookSubjet:"SQL Language", bookPrice:457, bookStock:11},
{bookId:9,bookName:"Transactions in SQL", bookSubjet:"SQL", bookPrice:397, bookStock:29}
]);
```

db.book.find();

```
> db.book.find();
{ "_id" : ObjectId("634ceeb4d99311e4a37391be"), "bookId" : 1, "bookName" : "Spirit of C", "bookSubjet" : "C Language", "bookPrice" : 123, "bookStock" : 23 }
{ "_id" : ObjectId("634cefa8d99311e4a37391bf"), "bookId" : 2, "bookName" : "Applets in Java", "bookSubjet" : "Java", "bookPrice" : 351, "bookStock" : 31 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c0"), "bookId" : 3, "bookName" : "Beans in Spring", "bookSubjet" : "Spring", "bookPrice" : 456, "bookStock" : 15 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c1"), "bookId" : 4, "bookName" : "Forms in HTML", "bookSubjet" : "HTML", "bookPrice" : 532, "bookStock" : 17 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c2"), "bookId" : 5, "bookName" : "Graphics in C", "bookSubjet" : "C Language", "bookPrice" : 231, "bookStock" : 8 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c3"), "bookId" : 6, "bookName" : "Threads in Java", "bookSubjet" : "Java", "bookPrice" : 398, "bookStock" : 21 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c4"), "bookId" : 7, "bookName" : "Styles in HTML", "bookSubjet" : "HTML", "bookPrice" : 674, "bookStock" : 37 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c5"), "bookId" : 8, "bookName" : "Join in SQL", "bookSubjet" : "SQL Language", "bookPrice" : 457, "bookStock" : 11 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c6"), "bookId" : 9, "bookName" : "Transactions in SQL", "bookSubjet" : "SQL", "bookPrice" : 397, "bookStock" : 29 }
```

```
> db.book.find().pretty();
{
        "_id" : ObjectId("634ceeb4d99311e4a37391be"),
        "bookId" : 1,
        "bookName" : "Spirit of C",
        "bookSubjet" : "C Language",
        "bookPrice" : 123,
        "bookStock" : 23
}
{
        "_id" : ObjectId("634cefa8d99311e4a37391bf"),
        "bookId" : 2,
        "bookName" : "Applets in Java",
        "bookSubjet" : "Java",
        "bookPrice" : 351,
        "bookStock" : 31
}
{
        "_id" : ObjectId("634cefa8d99311e4a37391c0"),
        "bookId" : 3,
        "bookName" : "Beans in Spring",
        "bookSubjet" : "Spring",
        "bookPrice" : 456,
        "bookStock" : 15
}
```

db.book.help();

to get help about command in book collection

```
> db.book.help()
DBCollection help
        db.book.find().help() - show DBCursor help
        db.book.bulkWrite( operations, <optional params> ) - bulk execute write operations, optional par
        db.book.count( query = {}, <optional params> ) - count the number of documents that matches the
        db.book.countDocuments( query = {}, <optional params> ) - count the number of documents that mat
        db.book.estimatedDocumentCount( <optional params> ) - estimate the document count using collecti
        db.book.convertToCapped(maxBytes) - calls {convertToCapped:'book', size:maxBytes}} command
        db.book.createIndex(keypattern[,options])
        db.book.createIndexes([keypatterns], <options>)
```

```
> db.book.find();
{ "_id" : ObjectId("634
  "bookSubjet" : "C Lan
```

```
> db.book.find( { bookSubject:"Java" } )
{ "_id" : ObjectId("634cefa8d99311e4a37391bf"), "bookId" : 2, "bookName" : "Applets in Java", "bookSubjet" : "Java", "bookPrice" : 351, "bookStock" : 31 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c3"), "bookId" : 6, "bookName" : "Threads in Java", "bookSubjet" : "Java", "bookPrice" : 398, "bookStock" : 21 }
```

1 to display list of books which have subject as Java

select * from book where bookSubject='Java'   **db.book.find({ bookSubject:"Java" });**

2 get list of books which are having price as >= 400

select * from book where bookPrice>=400   **db.book.find({ bookPrice : { $gte:400 }   });**

3 get list of books which are having subject as Java/HTML

select * from book where bookSubject='Java' or bookSubject='HTML'

db.book.find({ $or : [{bookSubjet:{$eq:"Java"}}, {bookSubjet:{$eq:"HTML"}}]   });

```
> db.book.find( { $or : [  {bookSubjet:{$eq:"Java"}}, {bookSubjet:{$eq:"HTML"}}   ]    }   );
{ "_id" : ObjectId("634cefa8d99311e4a37391bf"), "bookId" : 2, "bookName" : "Applets in Java", "bookSubjet" : "Java",
{ "_id" : ObjectId("634cefa8d99311e4a37391c1"), "bookId" : 4, "bookName" : "Forms in HTML", "bookSubjet" : "HTML", "b
{ "_id" : ObjectId("634cefa8d99311e4a37391c3"), "bookId" : 6, "bookName" : "Threads in Java", "bookSubjet" : "Java",
{ "_id" : ObjectId("634cefa8d99311e4a37391c4"), "bookId" : 7, "bookName" : "Styles in HTML", "bookSubjet" : "HTML", "
>
```

db.book.find({bookSubjet: {$in : ["Java","HTML"]} });

select * from book where bookSubject in ('Java','HTML');
select * from book where bookSubject not in ('Java','HTML');

db.book.find({bookSubjet: {$nin : ["Java","HTML"]} });

select * from book order by bookPrice

select * from book order by bookSubject asc, bookPrice desc

```
> db.book.find().sort( {bookStock:1});
{ "_id" : ObjectId("634cefa8d99311e4a37391c2"), "bookId" : 5, "bookName" : "Graphics in C", "bookSubjet" : "C Language", "bookPrice" : 231, "bookStock" : 8 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c5"), "bookId" : 8, "bookName" : "Join in SQL", "bookSubjet" : "SQL Language", "bookPrice" : 457, "bookStock" : 11 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c0"), "bookId" : 3, "bookName" : "Beans in Spring", "bookSubjet" : "Spring", "bookPrice" : 456, "bookStock" : 15 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c1"), "bookId" : 4, "bookName" : "Forms in HTML", "bookSubjet" : "HTML", "bookPrice" : 532, "bookStock" : 17 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c3"), "bookId" : 6, "bookName" : "Threads in Java", "bookSubjet" : "Java", "bookPrice" : 398, "bookStock" : 21 }
{ "_id" : ObjectId("634ceeb4d99311e4a37391be"), "bookId" : 1, "bookName" : "Spirit of C", "bookSubjet" : "C Language", "bookPrice" : 123, "bookStock" : 23 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c6"), "bookId" : 9, "bookName" : "Transactions in SQL", "bookSubjet" : "SQL", "bookPrice" : 397, "bookStock" : 29 }
{ "_id" : ObjectId("634cefa8d99311e4a37391bf"), "bookId" : 2, "bookName" : "Applets in Java", "bookSubjet" : "Java", "bookPrice" : 351, "bookStock" : 31 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c4"), "bookId" : 7, "bookName" : "Styles in HTML", "bookSubjet" : "HTML", "bookPrice" : 674, "bookStock" : 37 }
```

```
> db.book.find().sort( {bookPrice:-1});
{ "_id" : ObjectId("634cefa8d99311e4a37391c4"), "bookId" : 7, "bookName" : "Styles in HTML", "bookSubjet" : "HTML", "bookPrice" : 674, "bookStock" : 37 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c1"), "bookId" : 4, "bookName" : "Forms in HTML", "bookSubjet" : "HTML", "bookPrice" : 532, "bookStock" : 17 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c5"), "bookId" : 8, "bookName" : "Join in SQL", "bookSubjet" : "SQL Language", "bookPrice" : 457, "bookStock" : 11 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c0"), "bookId" : 3, "bookName" : "Beans in Spring", "bookSubjet" : "Spring", "bookPrice" : 456, "bookStock" : 15 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c3"), "bookId" : 6, "bookName" : "Threads in Java", "bookSubjet" : "Java", "bookPrice" : 398, "bookStock" : 21 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c6"), "bookId" : 9, "bookName" : "Transactions in SQL", "bookSubjet" : "SQL", "bookPrice" : 397, "bookStock" : 29 }
{ "_id" : ObjectId("634cefa8d99311e4a37391bf"), "bookId" : 2, "bookName" : "Applets in Java", "bookSubjet" : "Java", "bookPrice" : 351, "bookStock" : 31 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c2"), "bookId" : 5, "bookName" : "Graphics in C", "bookSubjet" : "C Language", "bookPrice" : 231, "bookStock" : 8 }
{ "_id" : ObjectId("634ceeb4d99311e4a37391be"), "bookId" : 1, "bookName" : "Spirit of C", "bookSubjet" : "C Language", "bookPrice" : 123, "bookStock" : 23 }
```

```
> db.book.aggregate( { $sort : { bookSubjet:1  ,bookPrice:-1 } } );
{ "_id" : ObjectId("634cefa8d99311e4a37391c2"), "bookId" : 5, "bookName" : "Graphics in C", "bookSubjet" : "C Language", "bookPrice" : 231, "bookStock" : 8 }
{ "_id" : ObjectId("634ceeb4d99311e4a37391be"), "bookId" : 1, "bookName" : "Spirit of C", "bookSubjet" : "C Language", "bookPrice" : 123, "bookStock" : 23 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c4"), "bookId" : 7, "bookName" : "Styles in HTML", "bookSubjet" : "HTML", "bookPrice" : 674, "bookStock" : 37 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c1"), "bookId" : 4, "bookName" : "Forms in HTML", "bookSubjet" : "HTML", "bookPrice" : 532, "bookStock" : 17 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c3"), "bookId" : 6, "bookName" : "Threads in Java", "bookSubjet" : "Java", "bookPrice" : 398, "bookStock" : 21 }
{ "_id" : ObjectId("634cefa8d99311e4a37391bf"), "bookId" : 2, "bookName" : "Applets in Java", "bookSubjet" : "Java", "bookPrice" : 351, "bookStock" : 31 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c6"), "bookId" : 9, "bookName" : "Transactions in SQL", "bookSubjet" : "SQL", "bookPrice" : 397, "bookStock" : 29 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c5"), "bookId" : 8, "bookName" : "Join in SQL", "bookSubjet" : "SQL Language", "bookPrice" : 457, "bookStock" : 11 }
{ "_id" : ObjectId("634cefa8d99311e4a37391c0"), "bookId" : 3, "bookName" : "Beans in Spring", "bookSubjet" : "Spring", "bookPrice" : 456, "bookStock" : 15 }
```

insert record values including collection

```
{
bookId : "B001",
bookName : "xyz",
authors :
        [
                {name:"Mc",city:"Delhi"},
                {name:"BGs", city:"Chennai"}
        ],
bookPrice : 300
}
```

How to display book documents based on partular author name