BDA Lab Record

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1BM19CS005

MongoDB:

```
use my_db
switched to db my_db
db.Student.insert({_id:1,name:"Michael",grade
:"VII",hobbies:"reading"})
WriteResult({ "nInserted" : 1 })
db.Student.update({_id:1},{$set:{hobbies:"crick
et"}},{upsert:true})
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
db.Student.find()
{ "_id" : 1, "name" : "Michael", "grade" : "VII",
"hobbies" : "cricket" }
db.Student.insert({id:1,name:"Latha",grade:"VII
I",hobbies:"Singing"})
WriteResult({ "nInserted" : 1 })
db.Student.find({name:"Latha"}).pretty()
{
                                        "_id" :
                                        ObjectId("6253f120f7936
                                        958d67f3c07"),
                                        "id" : 1,
                                        "name" : "Latha",
                                        "grade" : "VIII",
                                        "hobbies" : "Singing"
}
db.Student.find({},{name:1,grade:1,_id:0})
{ "name" : "Michael", "grade" : "VII" }
{ "name" : "Latha", "grade" : "VIII" }
db.Student.find({grade:{$eq:"VII"}}).pretty()
{ "_id" : 1, "name" : "Michael", "grade" : "VII",
"hobbies" : "cricket" }
db.Student.find({name:/^L/}).pretty()
{
```

"_id" :
ObjectId("6253f120f7936
958d67f3c07"),
"id" : 1,
"name" : "Latha",
"grade" : "VIII",
"hobbies" : "Singing"

```
}
db.Student.find({name:/a/}).pretty()
{ "_id" : 1, "name" : "Michael", "grade" : "VII",
"hobbies" : "cricket" }
{
```

"_id" :
ObjectId("6253f120f7936
958d67f3c07"),
"id" : 1,
"name" : "Latha",
"grade" : "VIII",
"hobbies" : "Singing"

```
}
db.Student.count()
2
db.Student.find().sort({name:1}).pretty()
{
```

"_id" :
ObjectId("6253f120f7936
958d67f3c07"),
"id" : 1,
"name" : "Latha",
"grade" : "VIII",
"hobbies" : "Singing"

```
}
{ "_id" : 1, "name" : "Michael", "grade" : "VII",
"hobbies" : "cricket" }
db.Student.save({name:"Ratan",grade:"VII",_id:
1})
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
db.Student.find()
{ "_id" : 1, "name" : "Ratan", "grade" : "VII" }
```

```
{ "_id" :
ObjectId("6253f120f7936958d67f3c07"), "id" :
1, "name" : "Latha", "grade" : "VIII", "hobbies" :
"Singing" }
db.Student.update({_id:1},{$set:{location:"net
work"}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
db.Student.update({_id:1},{$unset:{location:"n
etwork"}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
db.Student.find({name:/n$/}).pretty()
{ "_id" : 1, "name" : "Ratan", "grade" : "VII" }
db.Student.find({grade:"VII"}).limit(3).pretty()
{ "_id" : 1, "name" : "Ratan", "grade" : "VII" }
db.Student.count({grade:"VIII"})
1
db.Student.find().sort({name:1}).pretty()
{
                                        "_id" :
                                        ObjectId("6253f120f7936
                                        958d67f3c07"),
                                        "id" : 1,
                                        "name" : "Latha",
                                        "grade" : "VIII",
                                        "hobbies" : "Singing"
}
{ "_id" : 1, "name" : "Ratan", "grade" : "VII" }
db.Student.find().sort({name:-1}).pretty()
{ "_id" : 1, "name" : "Ratan", "grade" : "VII" }
{
                                        "_id" :
                                        ObjectId("6253f120f7936
                                        958d67f3c07"),
                                        "id" : 1,
                                        "name" : "Latha",
                                        "grade" : "VIII",
                                        "hobbies" : "Singing"
}
```

```
db.Student.find().skip(1).pretty()
{
                                                    "_id" :
                                                    ObjectId("6253f120f7936
                                                    958d67f3c07"),
                                                    "id" : 1,
                                                    "name" : "Latha",
                                                    "grade" : "VIII",
                                                    "hobbies" : "Singing"
}
db.createCollection("food")
{ "ok" : 1 }
db.food.insert({_id:1,fruits:['grapes','mango']})
WriteResult({ "nInserted" : 1 })
db.food.insert({_id:2,fruits:['grapes','mango','c
herry']})
WriteResult({ "nInserted" : 1 })
db.food.insert({_id:3,fruits:['banana','cherry']})
WriteResult({ "nInserted" : 1 })
db.food.find({fruits:['grapes','mango']})
{ "_id" : 1, "fruits" : [ "grapes", "mango" ] }
db.food.find({'fruits':{$size:2}})
{ "_id" : 1, "fruits" : [ "grapes", "mango" ] }
{ "_id" : 3, "fruits" : [ "banana", "cherry" ] }
db.food.find({_id:2},{'fruits':{$slice:2}})
{ "_id" : 2, "fruits" : [ "grapes", "mango" ] }
db.food.find({fruits:{$all:['grapes','mango']}})
{ "_id" : 1, "fruits" : [ "grapes", "mango" ] }
{ "_id" : 2, "fruits" : [ "grapes", "mango",
"cherry" ] }
db.food.update({_id:3},{$set:{'fruits.1':'apple'}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
db.food.find()
{ "_id" : 1, "fruits" : [ "grapes", "mango" ] }
{ "_id" : 2, "fruits" : [ "grapes", "mango",
"cherry" ] }
{ "_id" : 3, "fruits" : [ "banana", "apple" ] }
db.food.update({_id:2},{$push:{price:{grapes:8
0,mango:200,cherry:100}}})
```

```
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
db.createCollection("bank")
{ "ok" : 1 }
>
db.bank.insert({_id:1,name:"a",acctType:"S",ba
l:1000,terms:[1,2]})
WriteResult({ "nInserted" : 1 })
>
db.bank.insert({_id:2,name:"b",acctType:"S",ba
l:1000,terms:[1,2,5]})
WriteResult({ "nInserted" : 1 })
>
db.bank.insert({_id:3,name:"c",acctType:"S",ba
l:1000,terms:[1,2,5]})
WriteResult({ "nInserted" : 1 })
> db.bank.update({_id:2},{$push:{terms:10}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
> db.bank.find().pretty()
{
        "_id" : 1,
        "name" : "a",
        "acctType" : "S",
        "bal" : 1000,
        "terms" : [
                1,
                2
        ]
}
{
        "_id" : 2,
        "name" : "b",
        "acctType" : "S",
        "bal" : 1000,
        "terms" : [
                1,
                2,
                5,
                10
```

```
        ]
}
{
        "_id" : 3,
        "name" : "c",
        "acctType" : "S",
        "bal" : 1000,
        "terms" : [
                1,
                2,
                5
        ]
}
> db.bank.update({_id:1},{$set:{'terms.1':3}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
> db.bank.find().pretty()
{
        "_id" : 1,
        "name" : "a",
        "acctType" : "S",
        "bal" : 1000,
        "terms" : [
                1,
                3
        ]
}
{
        "_id" : 2,
        "name" : "b",
        "acctType" : "S",
        "bal" : 1000,
        "terms" : [
                1,
                2,
                5,
                10
        ]
}
{
```

```
        "_id" : 3,
        "name" : "c",
        "acctType" : "S",
        "bal" : 1000,
        "terms" : [
                1,
                2,
                5
        ]
}
>
db.students.update({name:"a"},{$set:{bal:2000
}})
WriteResult({ "nMatched" : 0, "nUpserted" : 0,
"nModified" : 0 })
>
db.students.update({_id:1,name:"a"},{$set:{bal:
2000}})
WriteResult({ "nMatched" : 0, "nUpserted" : 0,
"nModified" : 0 })
>
db.students.update({"name":"a"},{$set:{bal:20
00}})
WriteResult({ "nMatched" : 0, "nUpserted" : 0,
"nModified" : 0 })
> db.bank.update({name:"a"},{$set:{bal:2000}})
WriteResult({ "nMatched" : 1, "nUpserted" : 0,
"nModified" : 1 })
> db.bank.find().pretty()
{
        "_id" : 1,
        "name" : "a",
        "acctType" : "S",
        "bal" : 2000,
        "terms" : [
                1,
                3
        ]
}
{
```

```
        "_id" : 2,
        "name" : "b",
        "acctType" : "S",
        "bal" : 1000,
        "terms" : [
                1,
                2,
                5,
                10
        ]
}
{
        "_id" : 3,
        "name" : "c",
        "acctType" : "S",
        "bal" : 1000,
        "terms" : [
                1,
                2,
                5
        ]
}
```


Cassandra:

```
cqlsh> create keyspace mployee_space WITH REPLICATION = {'class' :
'SimpleStrategy','replication_factor':2};


CREATE TABLE employee_space.employee_info (emp_id int PRIMARY
KEY,emp_name text,designation text,date_of_joining timestamp,salary
float,dept_name text);


cqlsh> begin batch INSERT INTO
employee_space.employee_info(emp_id,emp_name,designation,date_of_joini
ng,salary,dept_name) VALUES(1,'Damodar','Manager','2022-01-
24',100000,'Marketing');

  ... apply batch;
```

```
cqlsh> begin batch INSERT INTO
employee_space.employee_info(emp_id,emp_name,designation,date_of_joini
ng,salary,dept_name) VALUES(2,'Mahalaxmi','Accountant','2021-01-
24',200000,'Accounts');

  ... INSERT INTO
employee_space.employee_info(emp_id,emp_name,designation,date_of_joini
ng,salary,dept_name) VALUES(3,'Mahesh','Manager','2021-03-
24',500000,'Marketing');

  ... INSERT INTO
employee_space.employee_info(emp_id,emp_name,designation,date_of_joini
ng,salary,dept_name) VALUES(4,'Nidhi','Administrator','2021-05-
24',500000,'Administration');

  ... INSERT INTO
employee_space.employee_info(emp_id,emp_name,designation,date_of_joini
ng,salary,dept_name) VALUES(5,'Rahul','Administrator','2009-05-
24',2000000,'Administration');

  ... apply batch;


cqlsh> use employee_space;


cqlsh:employee_space> select * from employee_info;


 emp_id | date_of_joining               | dept_name      | designation   |
emp_name  | salary
--------+---------------------------------+----------------+---------------+-----------+--------

    5 | 2009-05-23 18:30:00.000000+0000 | Administration | Administrator |
Rahul |  2e+06

    1 | 2022-01-23 18:30:00.000000+0000 |      Marketing |       Manager |
Damodar |  1e+05

    2 | 2021-01-23 18:30:00.000000+0000 |       Accounts |    Accountant |
Mahalaxmi |  2e+05
```

4 | 2021-05-23 18:30:00.000000+0000 | Administration | Administrator | Nidhi | 5e+05

3 | 2021-03-23 18:30:00.000000+0000 | Marketing | Manager | Mahesh | 5e+05

(5 rows)

cqlsh:employee_space> update employee_info set emp_name='Radha' where emp_id=1;

cqlsh:employee_space> update employee_info set dept_name='Development' where emp_id=1;

cqlsh:employee_space> select * from employee_info;

emp_id | date_of_joining | dept_name | designation | emp_name | salary

--------+---------------------------------+---------------+--------------+-----------+--------

5 | 2009-05-23 18:30:00.000000+0000 | Administration | Administrator | Rahul | 2e+06

1 | 2022-01-23 18:30:00.000000+0000 | Development | Manager | Radha | 1e+05

2 | 2021-01-23 18:30:00.000000+0000 | Accounts | Accountant | Mahalaxmi | 2e+05

4 | 2021-05-23 18:30:00.000000+0000 | Administration | Administrator | Nidhi | 5e+05

3 | 2021-03-23 18:30:00.000000+0000 | Marketing | Manager | Mahesh | 5e+05

(5 rows)

cqlsh:employee_space> alter table employee_info add projects set<text>;

cqlsh:employee_space> update employee_info set projects=projects+{'Web development','machine learning'} where emp_id=2;

cqlsh:employee_space> select * from employee_info;

```
 emp_id | date_of_joining                 | dept_name      | designation   | emp_name  | projects                          | salary
--------+---------------------------------+----------------+---------------+-----------+-----------------------------------+--------
      5 | 2009-05-23 18:30:00.000000+0000 | Administration | Administrator |     Rahul |                              null |  2e+06
      1 | 2022-01-23 18:30:00.000000+0000 |    Development |       Manager |     Radha |                              null |  1e+05
      2 | 2021-01-23 18:30:00.000000+0000 |       Accounts |    Accountant | Mahalaxmi | {'Web development', 'machine learning'} |  2e+05
      4 | 2021-05-23 18:30:00.000000+0000 | Administration | Administrator |     Nidhi |                              null |  5e+05
      3 | 2021-03-23 18:30:00.000000+0000 |      Marketing |       Manager |    Mahesh |                              null |  5e+05

(5 rows)
```

cqlsh:employee_space> update employee_info set projects=projects+{'Web development','machine learning','cybersecurity'} where emp_id=5;

```
cqlsh:employee_space> select * from employee_info;

 emp_id | date_of_joining              | dept_name      | designation   |
emp_name  | projects                                      | salary
--------+------------------------------+----------------+---------------+-----------+-------------
-----------------------------------------+--------

      5 | 2009-05-23 18:30:00.000000+0000 | Administration | Administrator |
Rahul | {'Web development', 'cybersecurity', 'machine learning'} |  2e+06

      1 | 2022-01-23 18:30:00.000000+0000 |    Development |       Manager |
Radha |                                     null |  1e+05

      2 | 2021-01-23 18:30:00.000000+0000 |       Accounts |    Accountant |
Mahalaxmi |                {'Web development', 'machine learning'} |  2e+05

      4 | 2021-05-23 18:30:00.000000+0000 | Administration | Administrator |
Nidhi |                                     null |  5e+05

      3 | 2021-03-23 18:30:00.000000+0000 |      Marketing |       Manager |
Mahesh |                                     null |  5e+05


(5 rows)


cqlsh:employee_space> INSERT INTO
employee_space.employee_info(emp_id,emp_name,designation,date_of_joini
ng,salary,dept_name) VALUES(6,'Harshitha','Manager','2022-01-
24',100000,'Marketing') using ttl 15;


cqlsh:employee_space> select * from employee_info;

 emp_id | date_of_joining              | dept_name      | designation   |
emp_name  | projects                                      | salary
--------+------------------------------+----------------+---------------+-----------+-------------
-----------------------------------------+--------
```

5 | 2009-05-23 18:30:00.000000+0000 | Administration | Administrator | Rahul | {'Web development', 'cybersecurity', 'machine learning'} | 2e+06

1 | 2022-01-23 18:30:00.000000+0000 | Development | Manager | Radha | null | 1e+05

2 | 2021-01-23 18:30:00.000000+0000 | Accounts | Accountant | Mahalaxmi | {'Web development', 'machine learning'} | 2e+05

4 | 2021-05-23 18:30:00.000000+0000 | Administration | Administrator | Nidhi | null | 5e+05

6 | 2022-01-23 18:30:00.000000+0000 | Marketing | Manager | Harshitha | null | 1e+05

3 | 2021-03-23 18:30:00.000000+0000 | Marketing | Manager | Mahesh | null | 5e+05

(6 rows)

cqlsh:employee_space> select * from employee_info;

emp_id | date_of_joining | dept_name | designation | emp_name | projects | salary

--------+---------------------------------+---------------+--------------+-----------+--+--------

5 | 2009-05-23 18:30:00.000000+0000 | Administration | Administrator | Rahul | {'Web development', 'cybersecurity', 'machine learning'} | 2e+06

1 | 2022-01-23 18:30:00.000000+0000 | Development | Manager | Radha | null | 1e+05

2 | 2021-01-23 18:30:00.000000+0000 | Accounts | Accountant | Mahalaxmi | {'Web development', 'machine learning'} | 2e+05

4 | 2021-05-23 18:30:00.000000+0000 | Administration | Administrator | Nidhi | null | 5e+05

```
    3 | 2021-03-23 18:30:00.000000+0000 |      Marketing |       Manager |
Mahesh |                                    null |  5e+05

(5 rows)

cqlsh> create keyspace library_space WITH
REPLICATION={'class':'SimpleStrategy','replication_factor':2};

cqlsh> use library_space;

cqlsh:library_space> create table library_info(stud_id int,counter_value
counter,stud_name text,book_name text,book_id int,date_of_issue
timestamp,PRIMARY
KEY(stud_id,stud_name,book_name,book_id,date_of_issue));

cqlsh:library_space> update library_info set counter_value=counter_value+1
where stud_id=1 and stud_name='abc' and book_name='book1' and
book_id=11 and date_of_issue='2022-01-30';

cqlsh:library_space> update library_info set counter_value=counter_value+1
where stud_id=2 and stud_name='def' and book_name='book2' and
book_id=12 and date_of_issue='2022-03-30';

cqlsh:library_space> update library_info set counter_value=counter_value+1
where stud_id=3 and stud_name='ghi' and book_name='book3' and
book_id=13 and date_of_issue='2022-05-30';

cqlsh:library_space> update library_info set counter_value=counter_value+1
where stud_id=4 and stud_name='jkl' and book_name='book4' and
book_id=14 and date_of_issue='2022-07-30';
```

```
cqlsh:library_space> update library_info set counter_value=counter_value+1
where stud_id=5 and stud_name='mno' and book_name='book5' and
book_id=15 and date_of_issue='2022-09-30';


cqlsh:library_space> select * from library_info;


 stud_id | stud_name | book_name | book_id | date_of_issue                | counter_value
---------+-----------+-----------+---------+---------------------------------+---------------
       5 |       mno |     book5 |      15 | 2022-09-29 18:30:00.000000+0000 |             1
       1 |       abc |     book1 |      11 | 2022-01-29 18:30:00.000000+0000 |             1
       2 |       def |     book2 |      12 | 2022-03-29 18:30:00.000000+0000 |             1
       4 |       jkl |     book4 |      14 | 2022-07-29 18:30:00.000000+0000 |             1
       3 |       ghi |     book3 |      13 | 2022-05-29 18:30:00.000000+0000 |             1


(5 rows)


cqlsh:library_space> update library_info set counter_value=counter_value+1
where stud_id=5 and stud_name='mno' and book_name='book5' and
book_id=15 and date_of_issue='2022-09-30';


cqlsh:library_space> select * from library_info;
```

```
 stud_id | stud_name | book_name | book_id | date_of_issue                | counter_value
---------+-----------+-----------+---------+---------------------------------+---------------
       5 |       mno |     book5 |      15 | 2022-09-29 18:30:00.000000+0000 |             2
       1 |       abc |     book1 |      11 | 2022-01-29 18:30:00.000000+0000 |             1
       2 |       def |     book2 |      12 | 2022-03-29 18:30:00.000000+0000 |             1
       4 |       jkl |     book4 |      14 | 2022-07-29 18:30:00.000000+0000 |             1
       3 |       ghi |     book3 |      13 | 2022-05-29 18:30:00.000000+0000 |             1

(5 rows)

cqlsh:library_space> copy library_info(stud_id,stud_name,book_name,book_id,date_of_issue,counter_value) to '/home/bmscecse/Desktop/bda.csv';

Using 11 child processes

Starting copy of library_space.library_info with columns [stud_id, stud_name, book_name, book_id, date_of_issue, counter_value].
Processed: 5 rows; Rate:      45 rows/s; Avg. rate:      45 rows/s
5 rows exported to 1 files in 0.121 seconds.

cqlsh:library_space> create table library_info_copy(stud_id int,counter_value counter,stud_name text,book_name text,book_id int,date_of_issue timestamp,PRIMARY KEY(stud_id,stud_name,book_name,book_id,date_of_issue));
```

```
cqlsh:library_space> copy
library_info_copy(stud_id,stud_name,book_name,book_id,date_of_issue,coun
ter_value) from '/home/bmscecse/Desktop/new.csv';

Using 11 child processes

Starting copy of library_space.library_info_copy with columns [stud_id,
stud_name, book_name, book_id, date_of_issue, counter_value].
Processed: 5 rows; Rate:       8 rows/s; Avg. rate:      12 rows/s
5 rows imported from 1 files in 0.406 seconds (0 skipped).

cqlsh:library_space> select * from library_info where counter_value=2 allow
filtering;

 stud_id | stud_name | book_name | book_id | date_of_issue                | 
counter_value
---------+-----------+-----------+---------+------------------------------+--------------
      5 |       mno |     book5 |      15 | 2022-09-29 18:30:00.000000+0000 | 
2
```