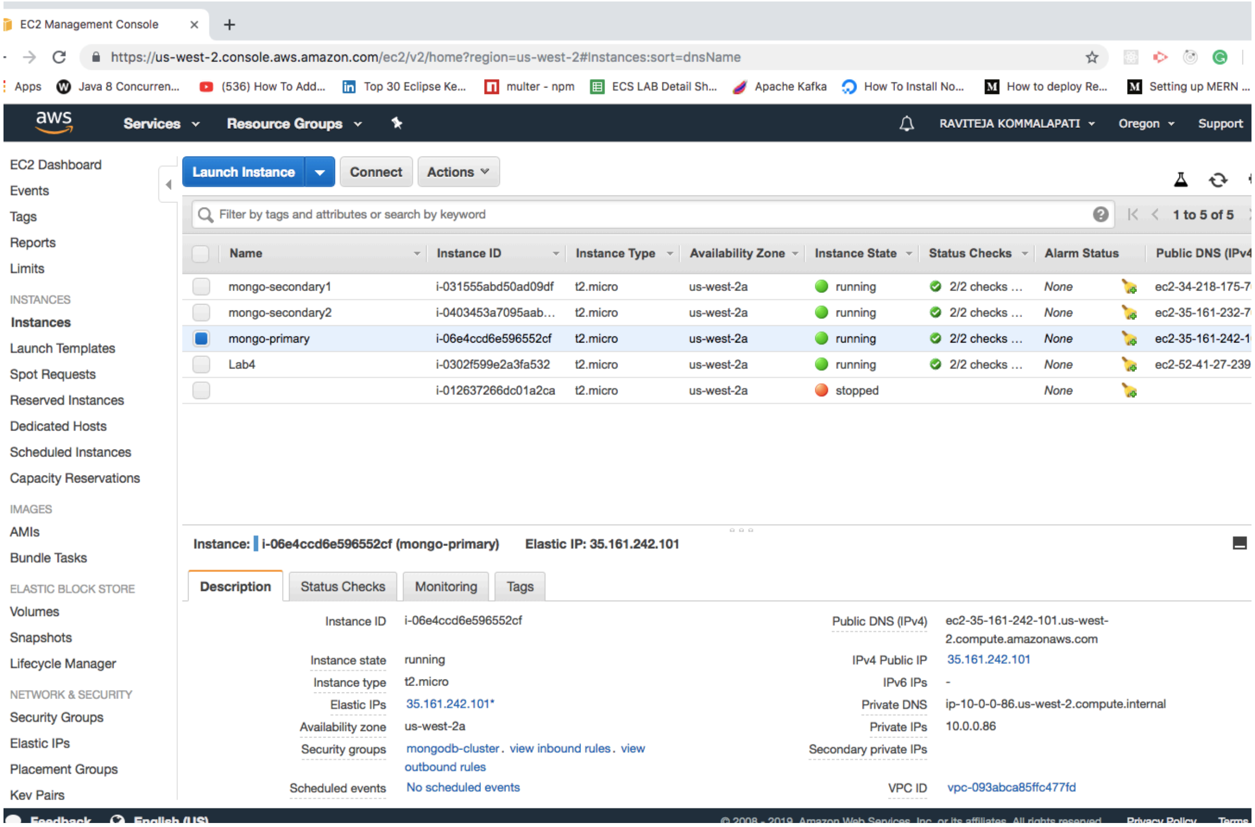
Name:- Raviteja Kommalapati

SJSUID:- 012526358

Lab 4 Solution

- EC2 Instance Dashboard showing the running Mongo Instances with their Public IP

Running Instances

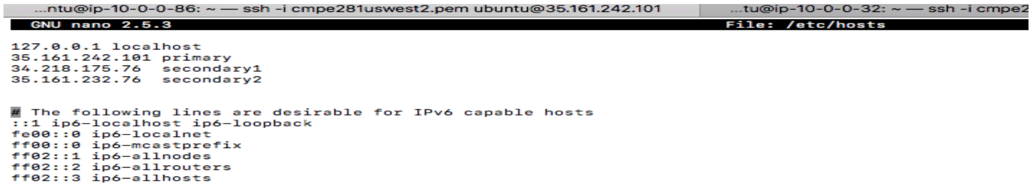


□	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4
□	mongo-secondary1	i-031555abd50ad09df	t2.micro	us-west-2a	● running	✓ 2/2 checks ...	None	ec2-34-218-175-7
□	mongo-secondary2	i-0403453a7095aab...	t2.micro	us-west-2a	● running	✓ 2/2 checks ...	None	ec2-35-161-232-7
■	mongo-primary	i-06e4ccd6e596552cf	t2.micro	us-west-2a	● running	✓ 2/2 checks ...	None	ec2-35-161-242-1
□	Lab4	i-0302f599e2a3fa532	t2.micro	us-west-2a	● running	✓ 2/2 checks ...	None	ec2-52-41-27-239
□		i-012637266dc01a2ca	t2.micro	us-west-2a	● stopped		None	

Instance: i-06e4ccd6e596552cf (mongo-primary) Elastic IP: 35.161.242.101

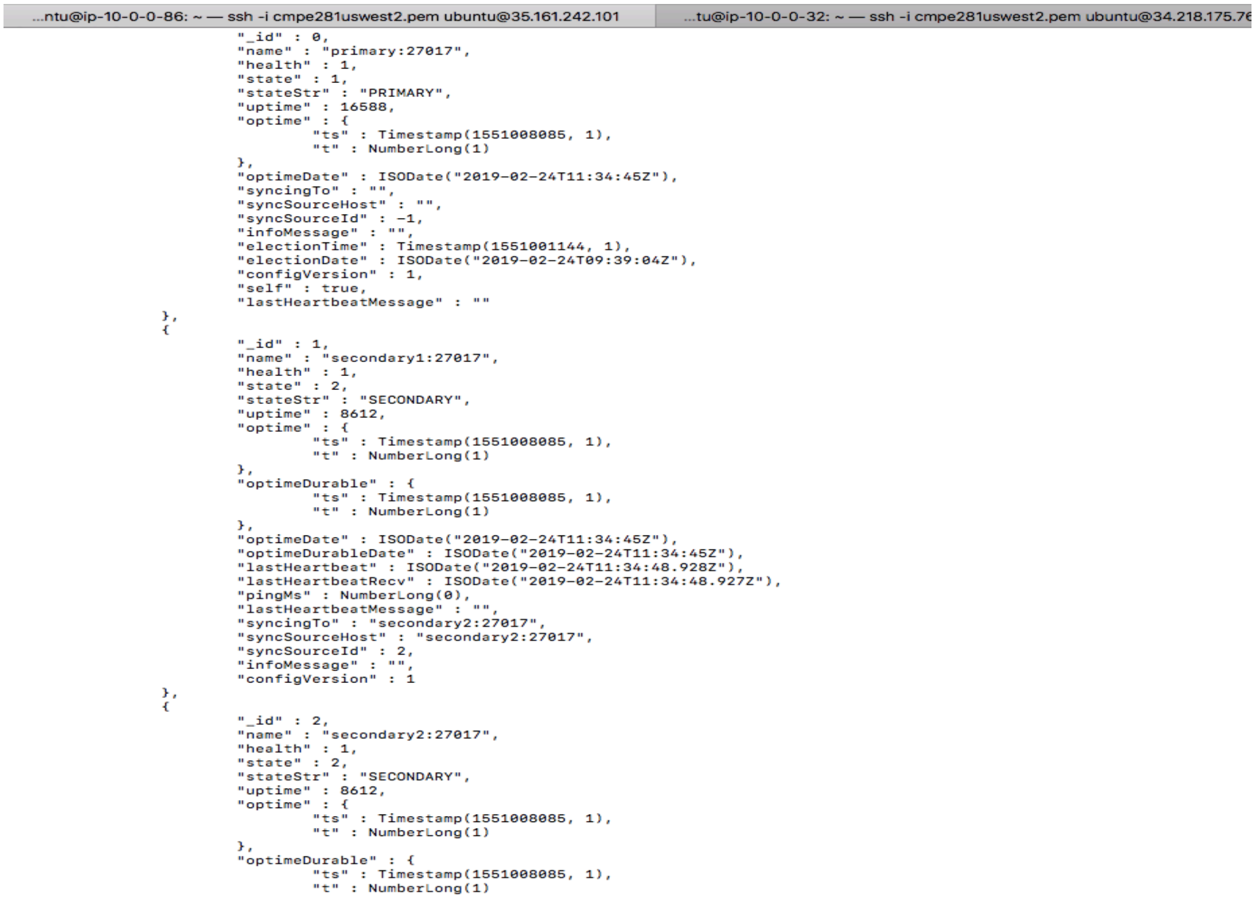
Description | Status Checks | Monitoring | Tags

Instance ID	i-06e4ccd6e596552cf	Public DNS (IPv4)	ec2-35-161-242-101.us-west-2.compute.amazonaws.com
Instance state	running	IPv4 Public IP	35.161.242.101
Instance type	t2.micro	IPv6 IPs	-
Elastic IPs	35.161.242.101*	Private DNS	ip-10-0-0-86.us-west-2.compute.internal
Availability zone	us-west-2a	Private IPs	10.0.0.86
Security groups	mongodb-cluster. view inbound rules. view outbound rules	Secondary private IPs	
Scheduled events	No scheduled events	VPC ID	vpc-093abca85ffc477fd



```
...ntu@ip-10-0-0-86: ~ — ssh -i cmpe281uswest2.pem ubuntu@35.161.242.101     ...tu@ip-10-0-0-32: ~ — ssh -i cmpe2
 GNU nano 2.5.3                                                   File: /etc/hosts

127.0.0.1 localhost
35.161.242.101 primary
34.218.175.76  secondary1
35.161.232.76  secondary2

# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
ff02::3 ip6-allhosts
```

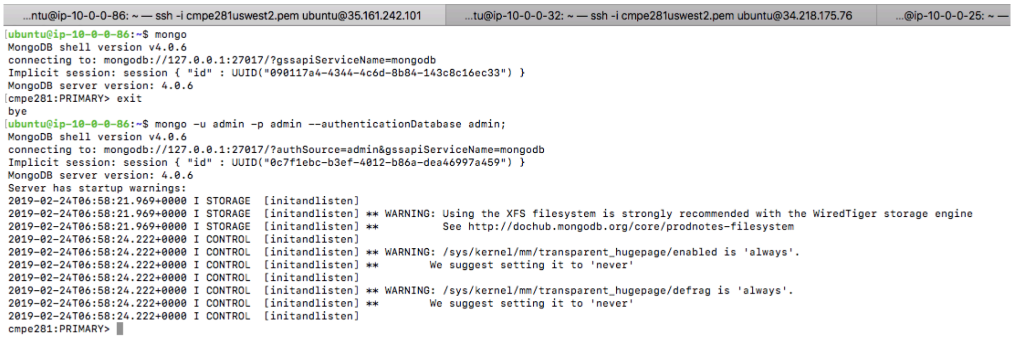
rs.status() log output


...ntu@ip-10-0-0-86: ~ — ssh -i cmpe281uswest2.pem ubuntu@35.161.242.101
...tu@ip-10-0-0-32: ~ — ssh -i cmpe281uswest2.pem ubuntu@34.218.175.76

```
                "_id" : 0,
                "name" : "primary:27017",
                "health" : 1,
                "state" : 1,
                "stateStr" : "PRIMARY",
                "uptime" : 16588,
                "optime" : {
                        "ts" : Timestamp(1551008085, 1),
                        "t" : NumberLong(1)
                },
                "optimeDate" : ISODate("2019-02-24T11:34:45Z"),
                "syncingTo" : "",
                "syncSourceHost" : "",
                "syncSourceId" : -1,
                "infoMessage" : "",
                "electionTime" : Timestamp(1551001144, 1),
                "electionDate" : ISODate("2019-02-24T09:39:04Z"),
                "configVersion" : 1,
                "self" : true,
                "lastHeartbeatMessage" : ""
        },
        {
                "_id" : 1,
                "name" : "secondary1:27017",
                "health" : 1,
                "state" : 2,
                "stateStr" : "SECONDARY",
                "uptime" : 8612,
                "optime" : {
                        "ts" : Timestamp(1551008085, 1),
                        "t" : NumberLong(1)
                },
                "optimeDurable" : {
                        "ts" : Timestamp(1551008085, 1),
                        "t" : NumberLong(1)
                },
                "optimeDate" : ISODate("2019-02-24T11:34:45Z"),
                "optimeDurableDate" : ISODate("2019-02-24T11:34:45Z"),
                "lastHeartbeat" : ISODate("2019-02-24T11:34:48.928Z"),
                "lastHeartbeatRecv" : ISODate("2019-02-24T11:34:48.927Z"),
                "pingMs" : NumberLong(0),
                "lastHeartbeatMessage" : "",
                "syncingTo" : "secondary2:27017",
                "syncSourceHost" : "secondary2:27017",
                "syncSourceId" : 2,
                "infoMessage" : "",
                "configVersion" : 1
        },
        {
                "_id" : 2,
                "name" : "secondary2:27017",
                "health" : 1,
                "state" : 2,
                "stateStr" : "SECONDARY",
                "uptime" : 8612,
                "optime" : {
                        "ts" : Timestamp(1551008085, 1),
                        "t" : NumberLong(1)
                },
                "optimeDurable" : {
                        "ts" : Timestamp(1551008085, 1),
                        "t" : NumberLong(1)
```

MongoDB Shell Connections to your Mongo Cluster along with each of the 10 Mongo Queries with Results

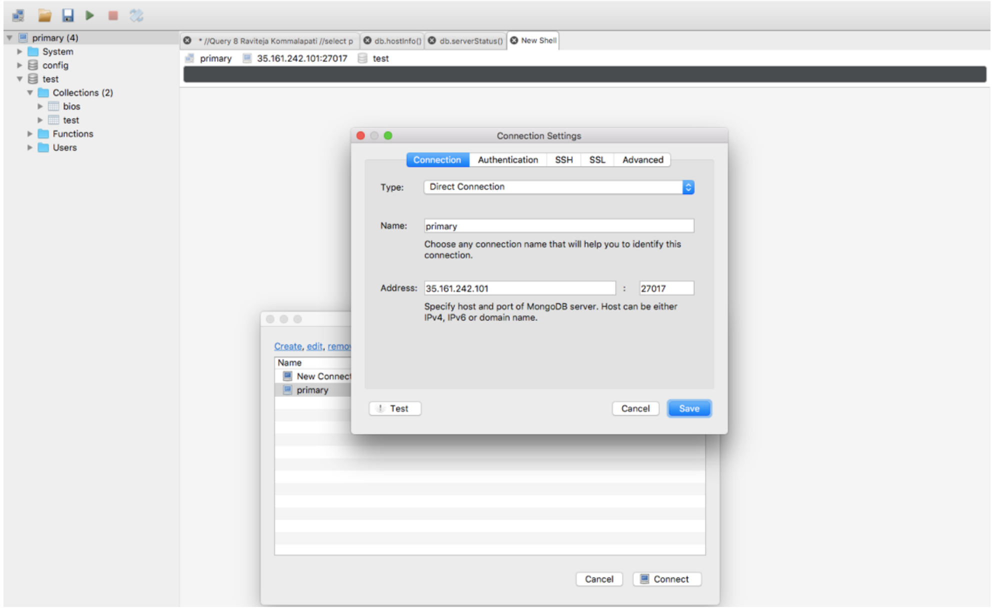
Connecting mongodb in instance



...ntu@ip-10-0-0-86: ~ — ssh -i cmpe281uswest2.pem ubuntu@35.161.242.101
...tu@ip-10-0-0-32: ~ — ssh -i cmpe281uswest2.pem ubuntu@34.218.175.76
...@ip-10-0-0-25: ~ —

```
ubuntu@ip-10-0-0-86:~$ mongo
MongoDB shell version v4.0.6
connecting to: mongodb://127.0.0.1:27017/?gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("090117a4-4344-4c6d-8b84-143c8c16ec33") }
MongoDB server version: 4.0.6
cmpe281:PRIMARY> exit
bye
ubuntu@ip-10-0-0-86:~$ mongo -u admin -p admin --authenticationDatabase admin;
MongoDB shell version v4.0.6
connecting to: mongodb://127.0.0.1:27017/?authSource=admin&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("0c7f1ebc-b3ef-4012-b86a-dea46997a459") }
MongoDB server version: 4.0.6
Server has startup warnings:
2019-02-24T06:58:21.969+0000 I STORAGE  [initandlisten]
2019-02-24T06:58:21.969+0000 I STORAGE  [initandlisten] ** WARNING: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine
2019-02-24T06:58:21.969+0000 I STORAGE  [initandlisten] **          See http://dochub.mongodb.org/core/prodnotes-filesystem
2019-02-24T06:58:24.222+0000 I CONTROL  [initandlisten]
2019-02-24T06:58:24.222+0000 I CONTROL  [initandlisten] ** WARNING: /sys/kernel/mm/transparent_hugepage/enabled is 'always'.
2019-02-24T06:58:24.222+0000 I CONTROL  [initandlisten] **        We suggest setting it to 'never'
2019-02-24T06:58:24.222+0000 I CONTROL  [initandlisten]
2019-02-24T06:58:24.222+0000 I CONTROL  [initandlisten] ** WARNING: /sys/kernel/mm/transparent_hugepage/defrag is 'always'.
2019-02-24T06:58:24.222+0000 I CONTROL  [initandlisten] **        We suggest setting it to 'never'
2019-02-24T06:58:24.222+0000 I CONTROL  [initandlisten]
cmpe281:PRIMARY> 
```

Connecting from Robo3T



Type: Direct Connection

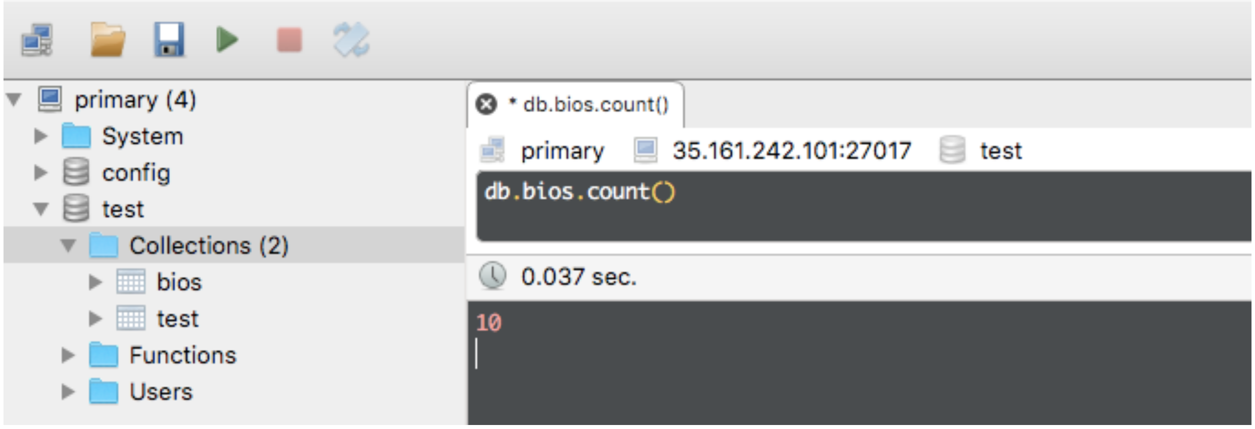
Name: primary

Choose any connection name that will help you to identify this connection.

Address: 35.161.242.101 : 27017

Specify host and port of MongoDB server. Host can be either IPv4, IPv6 or domain name.

Query1 Result

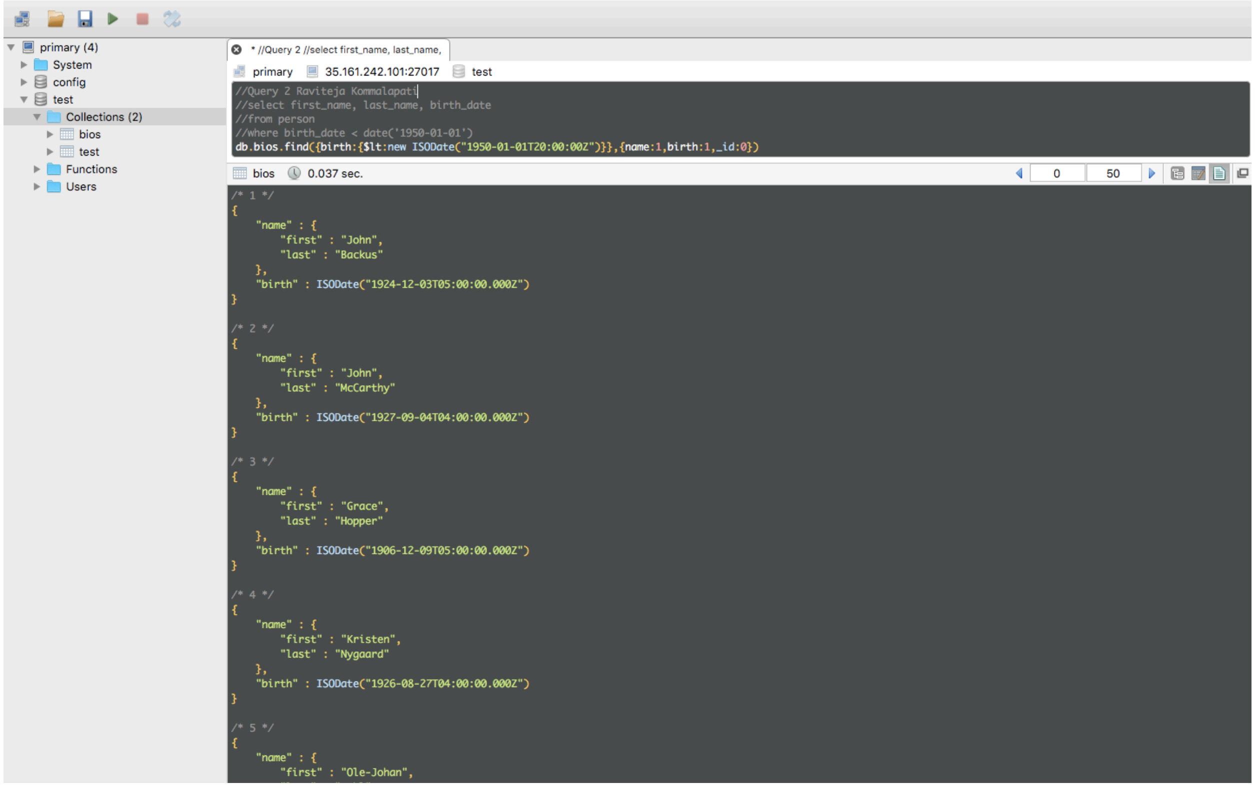


```
db.bios.count()
```

0.037 sec.

```
10
```

Query 2 Result

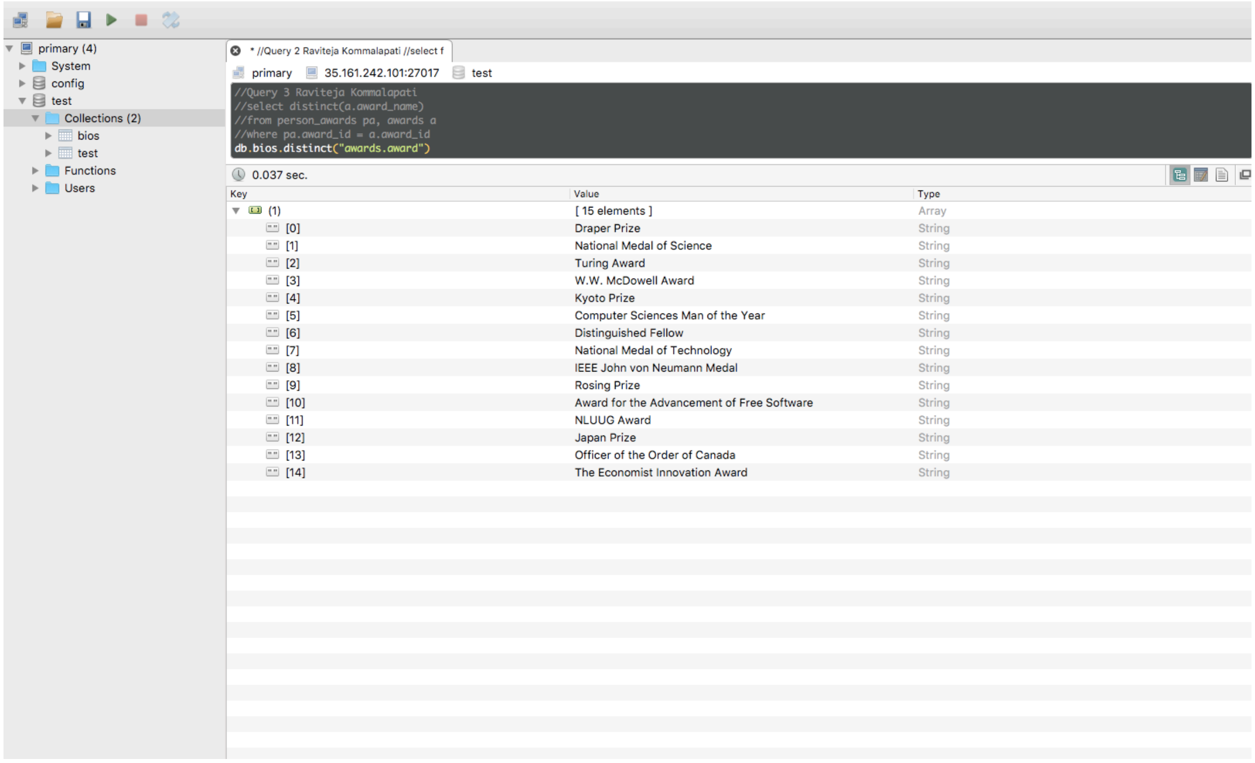


```
//Query 2 Raviteja Kommalapati
//select first_name, last_name, birth_date
//from person
//where birth_date < date('1950-01-01')
db.bios.find({birth:{$lt:new ISODate("1950-01-01T20:00:00Z")}},{name:1,birth:1,_id:0})
```

0.037 sec.

```
/* 1 */
{
    "name" : {
        "first" : "John",
        "last" : "Backus"
    },
    "birth" : ISODate("1924-12-03T05:00:00.000Z")
}

/* 2 */
{
    "name" : {
        "first" : "John",
        "last" : "McCarthy"
    },
    "birth" : ISODate("1927-09-04T04:00:00.000Z")
}

/* 3 */
{
    "name" : {
        "first" : "Grace",
        "last" : "Hopper"
    },
    "birth" : ISODate("1906-12-09T05:00:00.000Z")
}

/* 4 */
{
    "name" : {
        "first" : "Kristen",
        "last" : "Nygaard"
    },
    "birth" : ISODate("1926-08-27T04:00:00.000Z")
}

/* 5 */
{
    "name" : {
        "first" : "Ole-Johan",
```

Query 3 Result



* //Query 2 Raviteja Kommalapati //select f

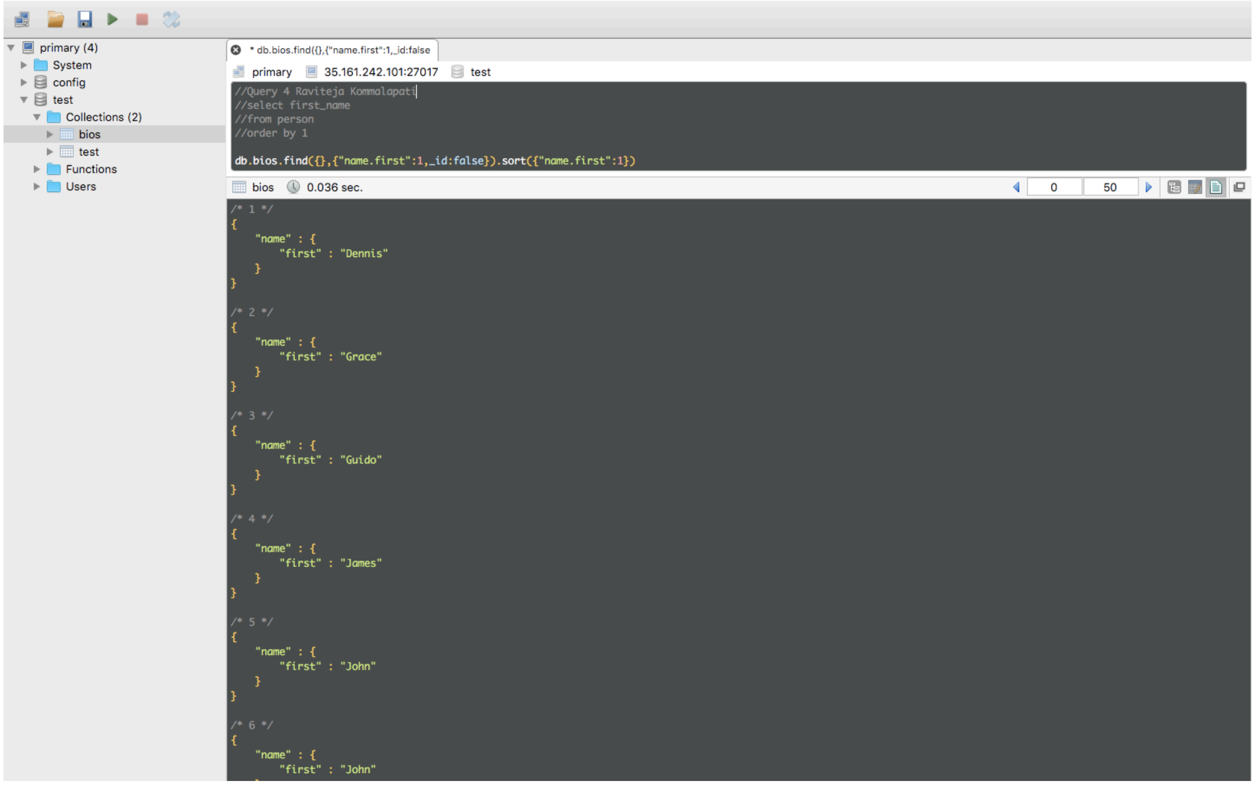
primary 35.161.242.101:27017 test

```
//Query 3 Raviteja Kommalapati
//select distinct(a.award_name)
//from person_awards pa, awards a
//where pa.award_id = a.award_id
db.bios.distinct("awards.award")
```

0.037 sec.

```
Key            Value                                         Type
▼ (1)          [ 15 elements ]                               Array
    [0]        Draper Prize                                  String
    [1]        National Medal of Science                     String
    [2]        Turing Award                                  String
    [3]        W.W. McDowell Award                           String
    [4]        Kyoto Prize                                   String
    [5]        Computer Sciences Man of the Year             String
    [6]        Distinguished Fellow                          String
    [7]        National Medal of Technology                  String
    [8]        IEEE John von Neumann Medal                   String
    [9]        Rosing Prize                                  String
    [10]       Award for the Advancement of Free Software    String
    [11]       NLUUG Award                                   String
    [12]       Japan Prize                                   String
    [13]       Officer of the Order of Canada                String
    [14]       The Economist Innovation Award                String
```

Query 4



* db.bios.find({},{"name.first":1,_id:false

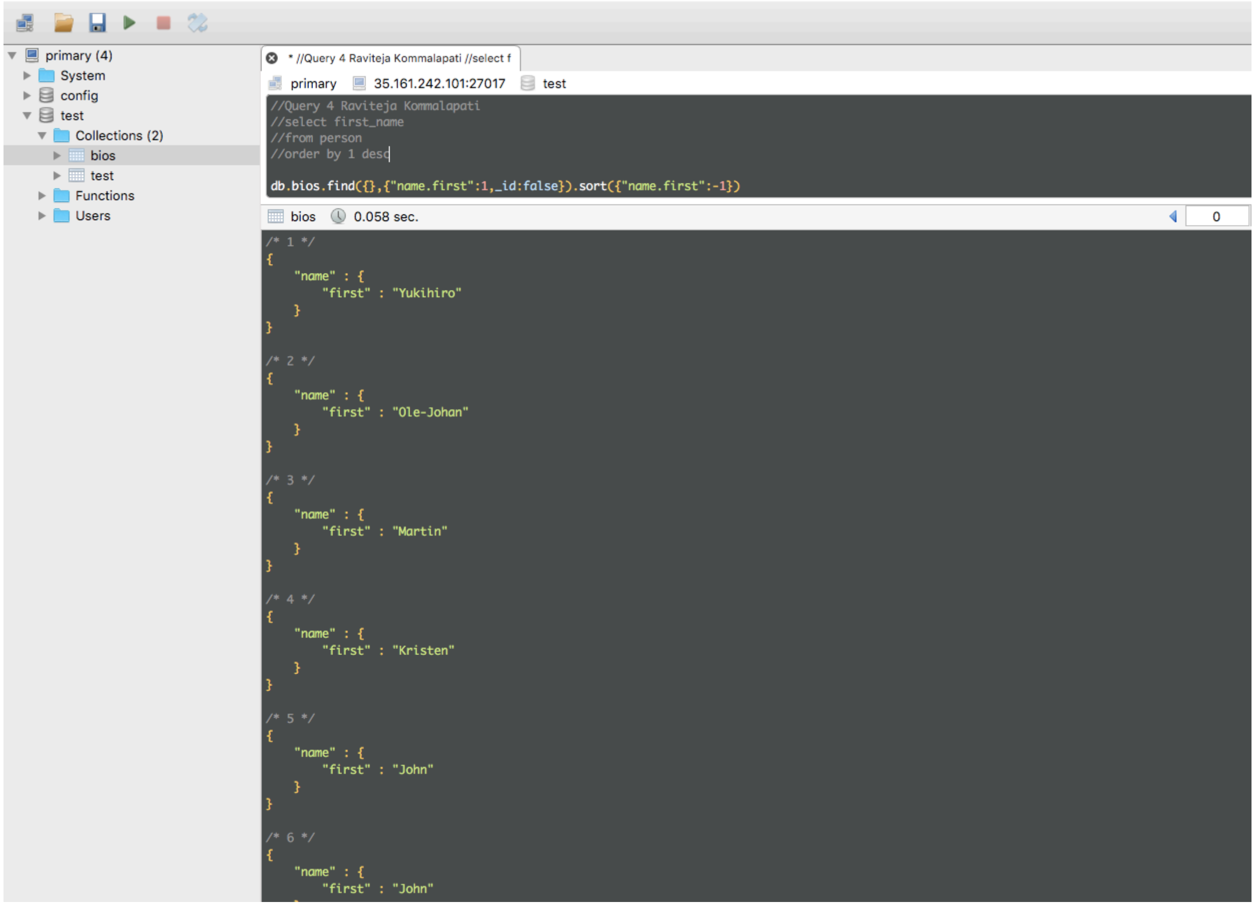
primary 35.161.242.101:27017 test

```
//Query 4 Raviteja Kommalapati
//select first_name
//from person
//order by 1

db.bios.find({},{"name.first":1,_id:false}).sort({"name.first":1})
```

bios 0.036 sec.

```
/* 1 */
{
    "name" : {
        "first" : "Dennis"
    }
}

/* 2 */
{
    "name" : {
        "first" : "Grace"
    }
}

/* 3 */
{
    "name" : {
        "first" : "Guido"
    }
}

/* 4 */
{
    "name" : {
        "first" : "James"
    }
}

/* 5 */
{
    "name" : {
        "first" : "John"
    }
}

/* 6 */
{
    "name" : {
        "first" : "John"
```

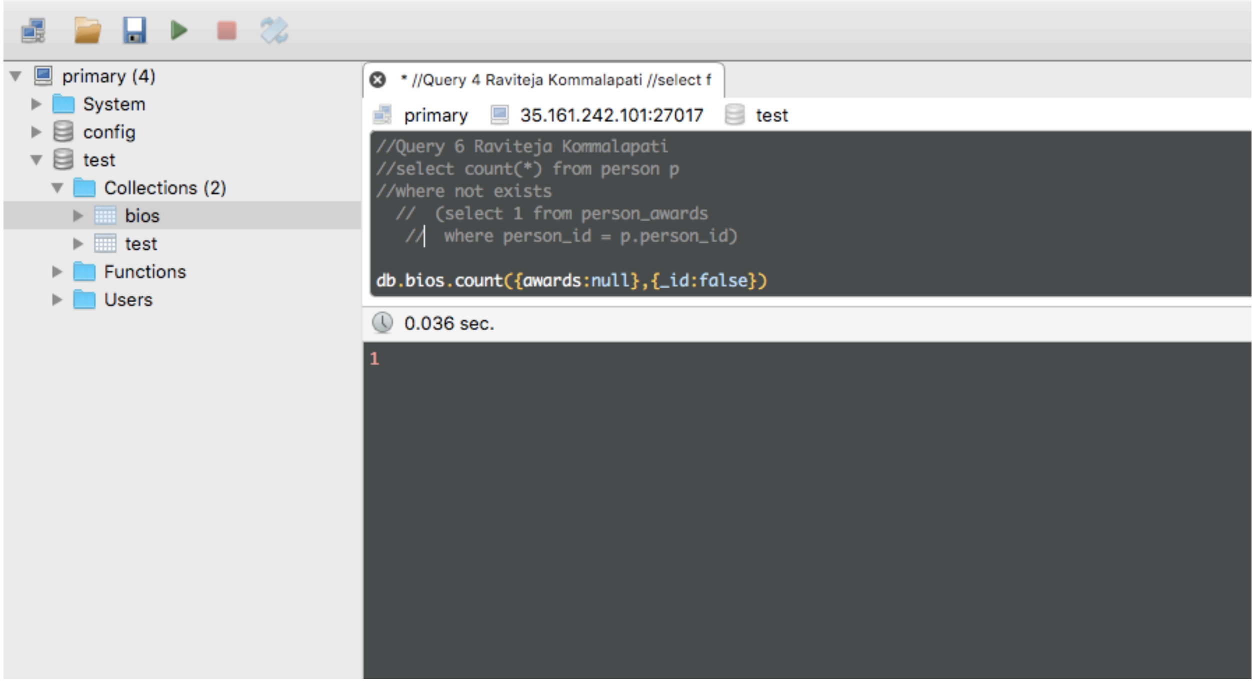
Query5 Result



```
//Query 4 Raviteja Kommalapati
//select first_name
//from person
//order by 1 desc

db.bios.find({},{"name.first":1,_id:false}).sort({"name.first":-1})
```

```
/* 1 */
{
    "name" : {
        "first" : "Yukihiro"
    }
}

/* 2 */
{
    "name" : {
        "first" : "Ole-Johan"
    }
}

/* 3 */
{
    "name" : {
        "first" : "Martin"
    }
}

/* 4 */
{
    "name" : {
        "first" : "Kristen"
    }
}

/* 5 */
{
    "name" : {
        "first" : "John"
    }
}

/* 6 */
{
    "name" : {
        "first" : "John"
```

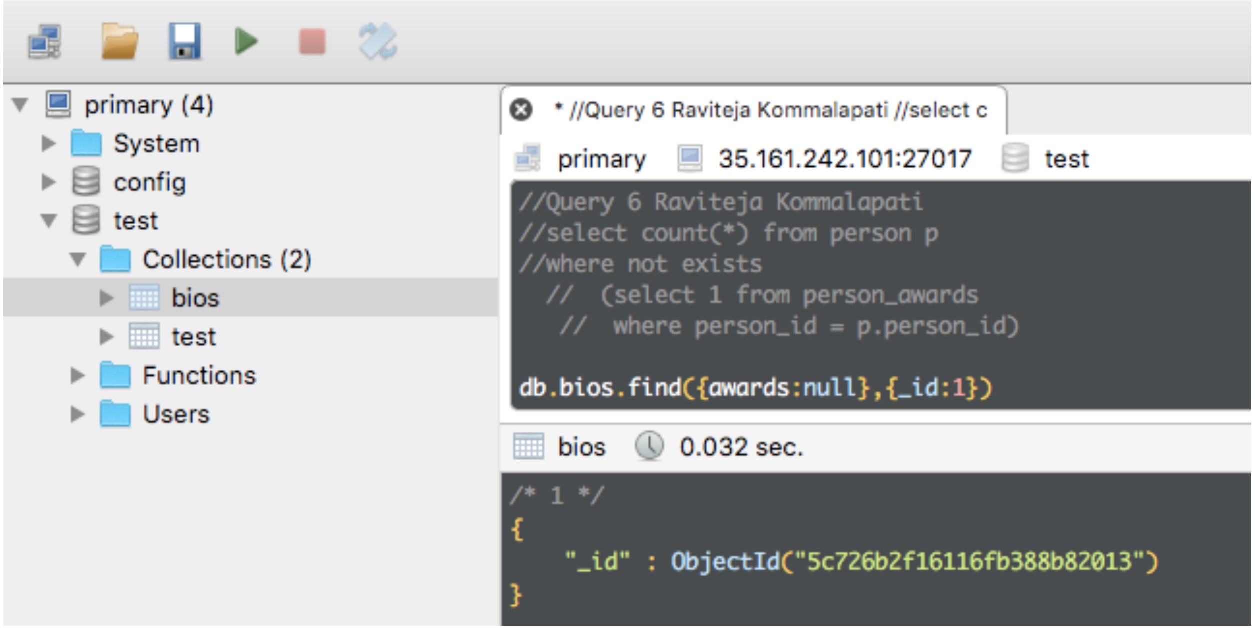
Query 6 Result



```
//Query 6 Raviteja Kommalapati
//select count(*) from person p
//where not exists
  //  (select 1 from person_awards
   //   where person_id = p.person_id)

db.bios.count({awards:null},{_id:false})
```

```
1
```

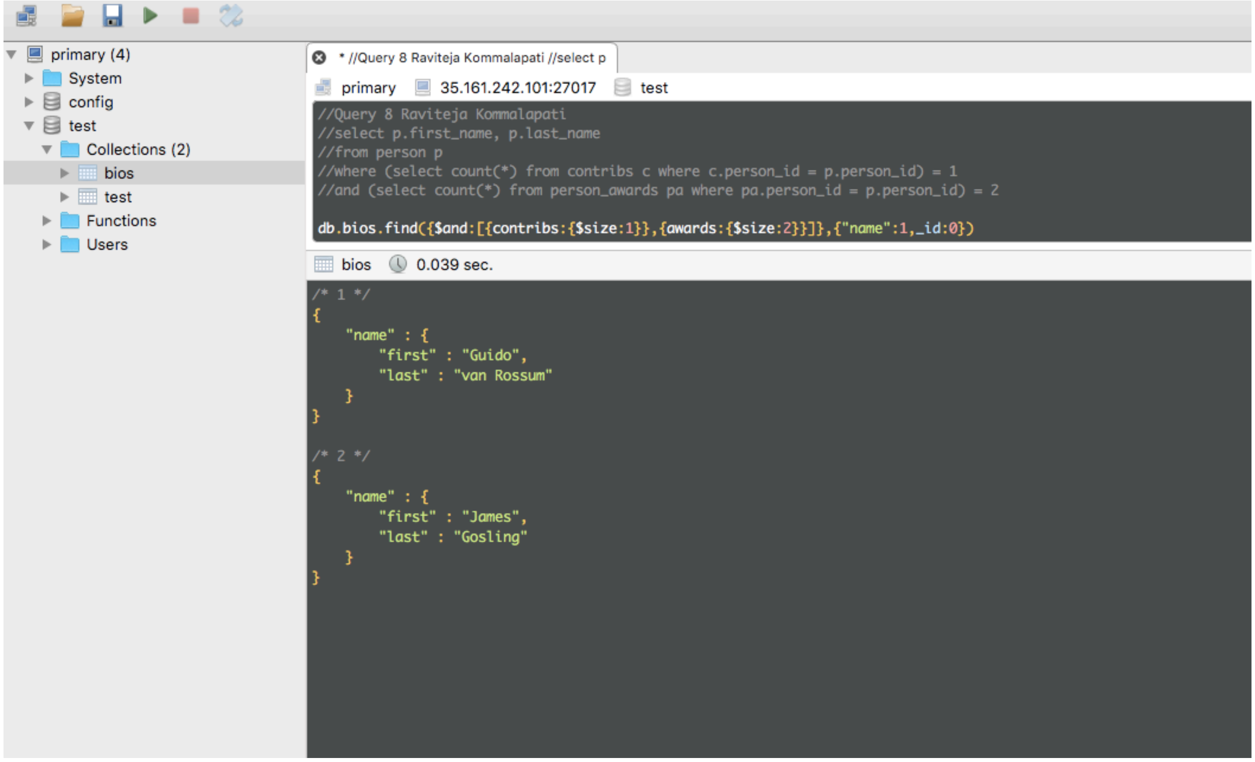
Query 7 Result



```
//Query 6 Raviteja Kommalapati
//select count(*) from person p
//where not exists
  //  (select 1 from person_awards
   //  where person_id = p.person_id)

db.bios.find({awards:null},{_id:1})
```

```
/* 1 */
{
    "_id" : ObjectId("5c726b2f16116fb388b82013")
}
```

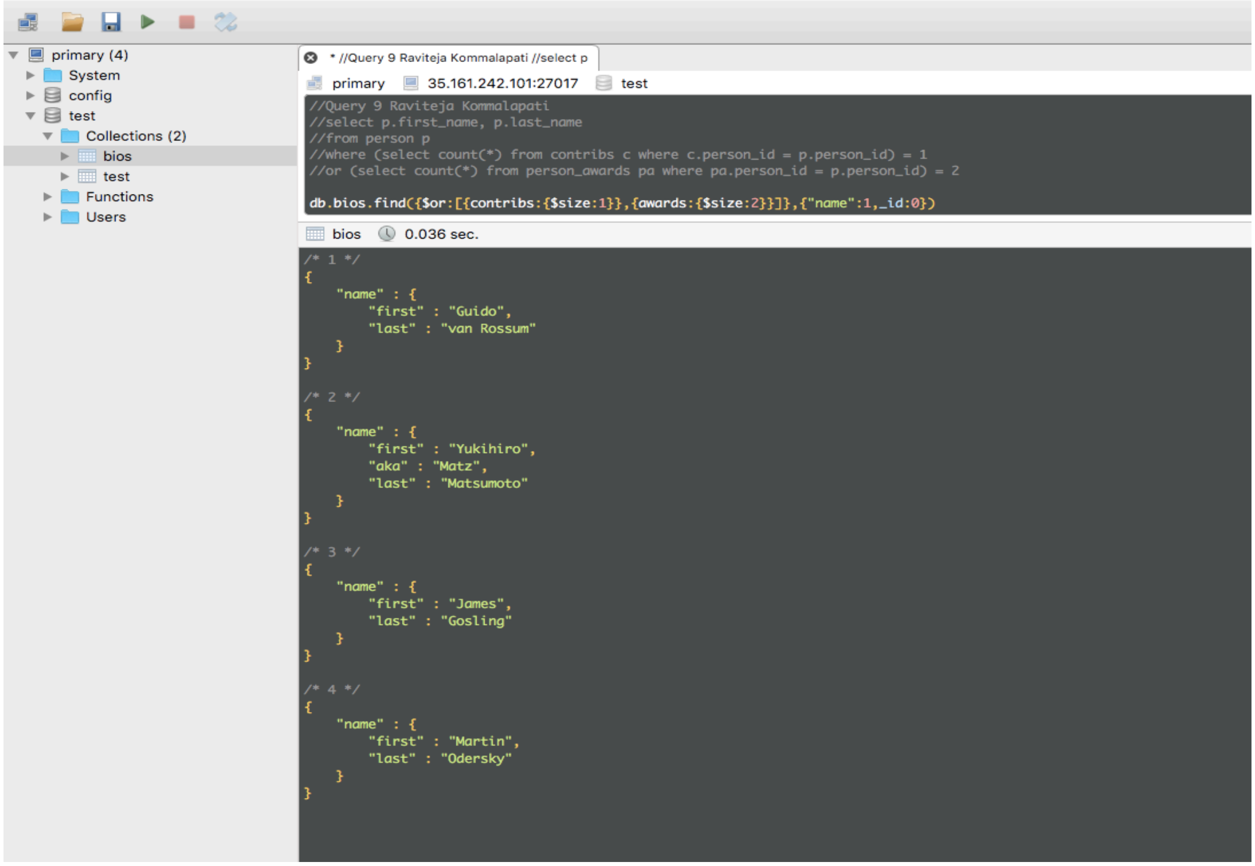
Query 8 Result



```
//Query 8 Raviteja Kommalapati
//select p.first_name, p.last_name
//from person p
//where (select count(*) from contribs c where c.person_id = p.person_id) = 1
//and (select count(*) from person_awards pa where pa.person_id = p.person_id) = 2

db.bios.find({$and:[{contribs:{$size:1}},{awards:{$size:2}}]},{"name":1,_id:0})
```

```
/* 1 */
{
    "name" : {
        "first" : "Guido",
        "last" : "van Rossum"
    }
}

/* 2 */
{
    "name" : {
        "first" : "James",
        "last" : "Gosling"
    }
}
```

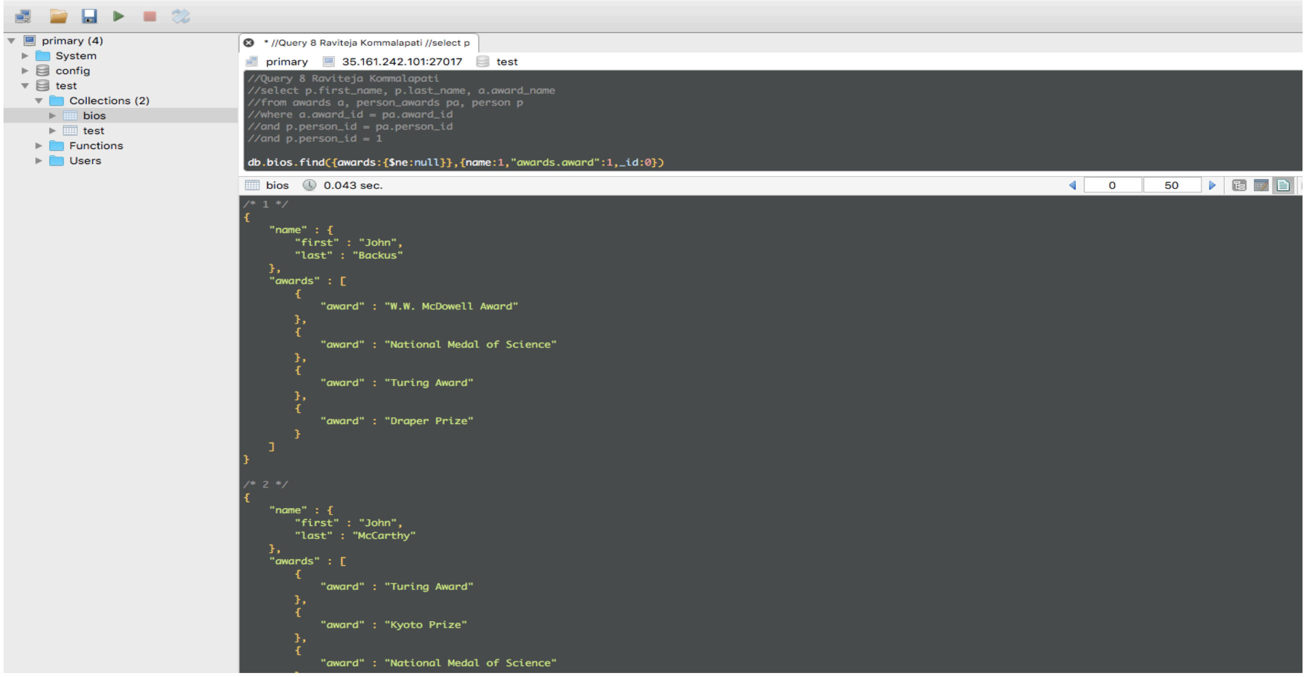
Query 9 Result



```
//Query 9 Raviteja Kommalapati
//select p.first_name, p.last_name
//from person p
//where (select count(*) from contribs c where c.person_id = p.person_id) = 1
//or (select count(*) from person_awards pa where pa.person_id = p.person_id) = 2

db.bios.find({$or:[{contribs:{$size:1}},{awards:{$size:2}}]},{"name":1,_id:0})
```

```
/* 1 */
{
    "name" : {
        "first" : "Guido",
        "last" : "van Rossum"
    }
}

/* 2 */
{
    "name" : {
        "first" : "Yukihiro",
        "aka" : "Matz",
        "last" : "Matsumoto"
    }
}

/* 3 */
{
    "name" : {
        "first" : "James",
        "last" : "Gosling"
    }
}

/* 4 */
{
    "name" : {
        "first" : "Martin",
        "last" : "Odersky"
    }
}
```

Query 10 Result



```
//Query 8 Raviteja Kommalapati
//select p.first_name, p.last_name, a.award_name
//from awards a, person_awards pa, person p
//where a.award_id = pa.award_id
//and p.person_id = pa.person_id
//and p.person_id = 1

db.bios.find({awards:{$ne:null}},{name:1,"awards.award":1,_id:0})
```

```
/* 1 */
{
    "name" : {
        "first" : "John",
        "last" : "Backus"
    },
    "awards" : [
        {
            "award" : "W.W. McDowell Award"
        },
        {
            "award" : "National Medal of Science"
        },
        {
            "award" : "Turing Award"
        },
        {
            "award" : "Draper Prize"
        }
    ]
}

/* 2 */
{
    "name" : {
        "first" : "John",
        "last" : "McCarthy"
    },
    "awards" : [
        {
            "award" : "Turing Award"
        },
        {
            "award" : "Kyoto Prize"
        },
        {
            "award" : "National Medal of Science"
```