SUSHMITHA P A
1NT19IS170
C2

EXERCISE 1

Creating database and collection.

use sushemployeeDB
switched to db sushemployeeDB
sushemployeeDB> db.createCollection ("employee");

```
test> use sushemployeeDB
switched to db sushemployeeDB
```

1. Populate the database with atleast 15 documents

Inserting the values.

```
sushemployeeDB> db.employee.insertMany([{firstname:'Pooja',middlename:'Reddy',lastname:'A',age:25,salary:50000,designation:'scientst',role:'te
ster'},{firstname:'Manvith',middlename:'Kumar',lastname:'M',age:27,salary:60000,designation:'scientst',role:'team led'},{firstname:'Teju',midd
lename:'Reddy',lastname:'G',age:28,salary:75000,designation:'HR',role:'Ui designer'},{firstname:'Varsha',middlename:'Honnesh',lastname:'L',age
:29,salary:30000,designation:'Assistant',role:'Manager'},{firstname:'Suchitra',middlename:'Raj',lastname:'P',age:36,salary:60000,designation:'
professor',role:'manager'},{firstname:'Hemanth',middlename:'Reddy',lastname:'A',age:40,salary:50000,designation:'scientst',role:'tester'},{fir
stname:'Krishna',middlename:'Ram',lastname:'K',age:32,salary:70000,designation:'HR',role:'team led'},{firstname:'Sanvi',middlename:'L',lastnam
e:'T',age:31,salary:70000,designation:'professor',role:'team led'},{firstname:'Daksh',middlename:'Kumar',lastname:'A',age:38,salary:20000,desi
gnation:'professor',role:'Ui designer'},{firstname:'Sushmitha',middlename:'P',lastname:'A',age:26,salary:30000,designation:'scientst',role:'so
ftware developer'},{firstname:'Ved',middlename:'R',lastname:'T',age:33,salary:50000,designation:'HR',role:'software developer'},{firstname:'Ra
yan',middlename:'Raj',lastname:'S',age:22,salary:75000,designation:'professor',role:'Ui designer'},{firstname:'Varun',middlename:'S',lastname:
'S',age:30,salary:25000,designation:'assistant',role:'team led'},{firstname:'yashwanth',middlename:'R',lastname:'D',age:28,salary:35000,design
ation:'assistant',role:'software developer'},{firstname:'Shreyas',middlename:'Millinder',lastname:'A',age:25,salary:50000,designation:'scients
t',role:'tester'},{firstname:'rajesh',middlename:'Reddy',lastname:'A',age:22,salary:55000,designation:'scientst',role:'software developer'},{f
irstname:'gowtham',middlename:'Kumar',lastname:'A',age:40,salary:45000,designation:'assistant',role:'Ui designer'},{firstname:'Skandha',middle
name:'Shetty',lastname:'A',age:40,salary:35000,designation:'HR',role:'tester'}])
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId("629878dec59717b0bda97d30"),
    '1': ObjectId("629878dec59717b0bda97d31"),
    '2': ObjectId("629878dec59717b0bda97d32"),
    '3': ObjectId("629878dec59717b0bda97d33"),
    '4': ObjectId("629878dec59717b0bda97d34"),
    '5': ObjectId("629878dec59717b0bda97d35"),
    '6': ObjectId("629878dec59717b0bda97d36"),
    '7': ObjectId("629878dec59717b0bda97d37"),
    '8': ObjectId("629878dec59717b0bda97d38"),
    '9': ObjectId("629878dec59717b0bda97d39"),
    '10': ObjectId("629878dec59717b0bda97d3a"),
    '11': ObjectId("629878dec59717b0bda97d3b"),
    '12': ObjectId("629878dec59717b0bda97d3c"),
    '13': ObjectId("629878dec59717b0bda97d3d"),
    '14': ObjectId("629878dec59717b0bda97d3e"),
    '15': ObjectId("629878dec59717b0bda97d3f"),
    '16': ObjectId("629878dec59717b0bda97d40"),
    '17': ObjectId("629878dec59717b0bda97d41")
  }
}
```

Displaying the records.

```
sushemployeeDB> db.employee.find()
[
  {
    _id: ObjectId("629878dec59717b0bda97d30"),
    firstname: 'Pooja',
    middlename: 'Reddy',
    lastname: 'A',
    age: 25,
    salary: 50000,
    designation: 'scientst',
    role: 'tester'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d31"),
    firstname: 'Manvith',
    middlename: 'Kumar',
    lastname: 'M',
    age: 27,
    salary: 60000,
    designation: 'scientst',
    role: 'team led'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d32"),
    firstname: 'Teju',
    middlename: 'Reddy',
    lastname: 'G',
    age: 28,
    salary: 75000,
    designation: 'HR',
    role: 'Ui designer'
  },
  },
  {
    _id: ObjectId("629878dec59717b0bda97d33"),
    firstname: 'Varsha',
    middlename: 'Honnesh',
    lastname: 'L',
    age: 29,
    salary: 33000,
    designation: 'Assistant',
    role: 'manager'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d34"),
    firstname: 'Suchitra',
    middlename: 'Raj',
    lastname: 'P',
    age: 36,
    salary: 60000,
    designation: 'professor',
    role: 'manager'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d35"),
    firstname: 'Hemanth',
    middlename: 'Reddy',
    lastname: 'A',
    age: 40,
    salary: 50000,
    designation: 'scientst',
    role: 'tester'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d36"),
    firstname: 'Krishna',
    middlename: 'Ram',
    lastname: 'K',
    age: 32,
    salary: 70000,
    designation: 'HR',
    role: 'team led'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d37"),
    firstname: 'Sanvi',
    middlename: 'L',
    lastname: 'T',
    age: 31,
    salary: 70000,
    designation: 'professor',
    role: 'team led'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d38"),
    firstname: 'Daksh',
    middlename: 'Kumar',
    lastname: 'A',
    age: 38,
    salary: 20000,
    designation: 'professor',
    role: 'Ui designer'
  },
```

```
  },
  {
    _id: ObjectId("629878dec59717b0bda97d39"),
    firstname: 'Sushmitha',
    middlename: 'P',
    lastname: 'A',
    age: 26,
    salary: 30000,
    designation: 'scientst',
    role: 'software developer'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d3a"),
    firstname: 'Ved',
    middlename: 'R',
    lastname: 'T',
    age: 33,
    salary: 50000,
    designation: 'HR',
    role: 'software developer'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d3b"),
    firstname: 'Rayan',
    middlename: 'Raj',
    lastname: 'S',
    age: 22,
    salary: 75000,
    designation: 'professor',
    role: 'Ui designer'
  },
  ,
  {
    _id: ObjectId("629878dec59717b0bda97d3c"),
    firstname: 'Varun',
    middlename: 'S',
    lastname: 'S',
    age: 30,
    salary: 25000,
    designation: 'assistant',
    role: 'team led'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d3d"),
    firstname: 'yashwanth',
    middlename: 'R',
    lastname: 'D',
    age: 28,
    salary: 35000,
    designation: 'assistant',
    role: 'software developer'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d3e"),
    firstname: 'Shreyas',
    middlename: 'Millinder',
    lastname: 'A',
    age: 25,
    salary: 50000,
    designation: 'scientst',
    role: 'tester'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d40"),
    firstname: 'gowtham',
    middlename: 'Kumar',
    lastname: 'A',
    age: 40,
    salary: 45000,
    designation: 'assistant',
    role: 'Ui designer'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d41"),
    firstname: 'Skandha',
    middlename: 'Shetty',
    lastname: 'A',
    age: 40,
    salary: 35000,
    designation: 'HR',
    role: 'tester'
  },
  {
    _id: ObjectId("62987f2fc59717b0bda97d42"),
    firstname: 'rajesh',
    middlename: 'Reddy',
    lastname: 'A',
    salary: 55000,
    designation: 'scientst',
    role: 'software developer'
  }
]
```

QUERIES

2. List all the records having salary in the range of 20000 - 35000

sushemployeeDB> db. employee.find({salary: {$gt:20000,$lt:35000}})

```
sushemployeeDB> db.employee.find({salary:{$gt:20000,$lt:35000}})
[
  {
    _id: ObjectId("629878dec59717b0bda97d33"),
    firstname: 'Varsha',
    middlename: 'Honnesh',
    lastname: 'L',
    age: 29,
    salary: 30000,
    designation: 'Assistant',
    role: 'Manager'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d39"),
    firstname: 'Sushmitha',
    middlename: 'P',
    lastname: 'A',
    age: 26,
    salary: 30000,
    designation: 'scientst',
    role: 'software developer'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d3c"),
    firstname: 'Varun',
    middlename: 'S',
    lastname: 'S',
    age: 30,
    salary: 25000,
    designation: 'assistant',
    role: 'team led'
  }
]
```

3. List all the Employee whose Middle name is "Kumar"

sushemployeeDB> db.employee.find({"middlename":"Kumar"})

```
sushemployeeDB> db.employee.find({"middlename":"Kumar"})
[
  {
    _id: ObjectId("629878dec59717b0bda97d31"),
    firstname: 'Manvith',
    middlename: 'Kumar',
    lastname: 'M',
    age: 27,
    salary: 60000,
    designation: 'scientst',
    role: 'team led'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d38"),
    firstname: 'Daksh',
    middlename: 'Kumar',
    lastname: 'A',
    age: 38,
    salary: 20000,
    designation: 'professor',
    role: 'Ui designer'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d40"),
    firstname: 'gowtham',
    middlename: 'Kumar',
    lastname: 'A',
    age: 40,
    salary: 45000,
    designation: 'assistant',
    role: 'Ui designer'
  }
]
```

4. Count the number of Employees who has a role "Manager" in the Role Field

sushemployeeDB> db.employee.find({'role':'manager'}).count()

```
sushemployeeDB> db.employee.find({'role':'manager'}).count()
2
```

5. Find out all the documents who have age < 35 and salary in the range of 30000-35000
sushemployeeDB> db.employee.find({salary:{$gt:30000,$lt:35000},age:{$lt:35}})

```
sushemployeeDB> db.employee.find({salary:{$gt:30000,$lt:35000},age:{$lt:35}})
[
  {
    _id: ObjectId("629878dec59717b0bda97d33"),
    firstname: 'Varsha',
    middlename: 'Honnesh',
    lastname: 'L',
    age: 29,
    salary: 33000,
    designation: 'Assistant',
    role: 'manager'
  }
]
```

6. Delete an Employee whose "Firstname" is "Rajesh" and having the designation as "Scientist"

sushemployeeDB>
db.employee.deleteOne({'firstname':'rajesh'},{'designation':'scientst'})

```
]
sushemployeeDB> db.employee.deleteOne({'firstname':'rajesh'},{'designation':'scientst'})
{ acknowledged: true, deletedCount: 1 }
```

7. Update all the Employees whose role is "Team Lead" with a salary of 55650 INR

sushemployeeDB> db.employee.updateMany({role:'team led'},{$set:{salary:55650}})

```
sushemployeeDB> db.employee.updateMany({role:'team led'},{$set:{salary:55650}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 4,
  modifiedCount: 4,
  upsertedCount: 0
}
```

Displaying the records after update whose salary is set to 55650.

```
sushemployeeDB> db.employee.find({'role':'team led'})
[
  {
    _id: ObjectId("629878dec59717b0bda97d31"),
    firstname: 'Manvith',
    middlename: 'Kumar',
    lastname: 'M',
    age: 27,
    salary: 55650,
    designation: 'scientst',
    role: 'team led'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d36"),
    firstname: 'Krishna',
    middlename: 'Ram',
    lastname: 'K',
    age: 32,
    salary: 55650,
    designation: 'HR',
    role: 'team led'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d37"),
    firstname: 'Sanvi',
    middlename: 'L',
    lastname: 'T',
    age: 31,
    salary: 55650,
    designation: 'professor',
    role: 'team led'
  },
  {
    _id: ObjectId("629878dec59717b0bda97d3c"),
    firstname: 'Varun',
    middlename: 'S',
    lastname: 'S',
    age: 30,
    salary: 55650,
    designation: 'assistant',
    role: 'team led'
  }
]
```

8. Group all the Employees by their age(common age should be there) and calculate the average salary obtained in the each group

sushemployeeDB>
db.employee.aggregate([{$group:{_id:"$age",total:{$avg:"$salary"}}}])

```
sushemployeeDB> db.employee.aggregate([{$group:{_id:"$age",total:{$avg:"$salary"}}}])
[
  { _id: 27, total: 55650 },
  { _id: 38, total: 20000 },
  { _id: 40, total: 43333.333333333336 },
  { _id: 36, total: 60000 },
  { _id: 31, total: 55650 },
  { _id: 25, total: 50000 },
  { _id: 32, total: 55650 },
  { _id: 29, total: 33000 },
  { _id: 33, total: 50000 },
  { _id: 22, total: 75000 },
  { _id: 28, total: 55000 },
  { _id: 30, total: 55650 },
  { _id: 26, total: 30000 }
]
```

9. Apply the map-reduce to perform the above operation and obtain the results

sushemployeeDB> var mapfunction=function(){emit(this.age,this.salary)}

sushemployeeDB> var reducefunction=function(key,values){return Array.avg(values)}

sushemployeeDB> db.employee.mapReduce(mapfunction,reducefunction,{'out':'result'})

```
]
sushemployeeDB> var mapfunction=function(){emit(this.age,this.salary)}

sushemployeeDB> var reducefunction=function(key,values){return Array.avg(values)}

sushemployeeDB> db.employee.mapReduce(mapfunction,reducefunction,{'out':'result'})
DeprecationWarning: Collection.mapReduce() is deprecated. Use an aggregation instead.
See https://docs.mongodb.com/manual/core/map-reduce for details.
{ result: 'result', ok: 1 }
sushemployeeDB> db.employee.mapReduce(mapfunction,reducefunction,{'out':'result'})
{ result: 'result', ok: 1 }
sushemployeeDB>

sushemployeeDB> db.result.find()
[
  { _id: 38, value: 20000 },
  { _id: 26, value: 30000 },
  { _id: 33, value: 50000 },
  { _id: 22, value: 75000 },
  { _id: 30, value: 55650 },
  { _id: 28, value: 55000 },
  { _id: 32, value: 55650 },
  { _id: 29, value: 33000 },
  { _id: 31, value: 55650 },
  { _id: 25, value: 50000 },
  { _id: 40, value: 43333.333333333336 },
  { _id: 36, value: 60000 },
  { _id: 27, value: 55650 }
]
```