

BIG DATA

CHAITANYA P

1NT19IS107

C1 BATCH

31-05-2022

1. Create a collection named "Employee" under the "EmployeeDB" database with each document in the format shown below Table 1.

Table 1: Document Format

Name	Age	Salary in INR	Designation	Role
{Firstname, middlename, lastname}	25-40	20000 - 75000	Employee Designation	[Manager, "Team Lead", "Software Developer", "Tester", "UI Designer"]
String BSON Object	int	Number	String	String Array

Queries

1. Populate the database with at least 15 documents

```
db.chaitanyaemp.insertMany([{{first_name:"draco",middle_name:"ken",last_name:"malfoy",age:36,salary:70000,designation:"analyst",role:"team_lead"},{first_name:"ginny",middle_name:"kim",last_name:"weasley",age:30,salary:55000,designation:"scientist",role:"manager"}}])
```

```
db.chaitanyaemp.insertMany([{{first_name:"albus",middle_name:"park",last_name:"dumbledore",age:40,salary:65000,designation:"UIDesigner",role:"team_lead"},{first_name:"enola",middle_name:"kim",last_name:"holmes",age:38,salary:55000,designation:"scientist",role:"tester"}}])
```

```
db.chaitanyaemp.insertMany([{{first_name:"rubius",middle_name:"kim",last_name:"hagrid",age:40,salary:65000,designation:"UIDesigner",role:"manager"},{first_name:"snape",middle_name:"dennis",last_name:"byers",age:38,salary:55000,designation:"associate",role:"tester"}}])
```

```

> db.chaitanyaemp.insertMany([{{first_name:"rajesh",middle_name:"kumar",last_name:"panja",age:30,salary:35000,designation:"scientist",role:"manager"}},{
first_name:"sitara",middle_name:"sriyatsav",last_name:"reddy",age:35,salary:55000,designation:"software_designer",role:"manager"}}])
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("6295a36cd3a1df6dde2f66ca"),
    ObjectId("6295a36cd3a1df6dde2f66cb")
  ]
}
> db.chaitanyaemp.insertMany([{{first_name:"satish",middle_name:"kumar",last_name:"varma",age:32,salary:31000,designation:"developer",role:"team_lead"}
,{first_name:"renu",middle_name:"prakash",last_name:"sharma",age:33,salary:33300,designation:"designer",role:"tester"}}])
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("6295a425d3a1df6dde2f66cc"),
    ObjectId("6295a425d3a1df6dde2f66cd")
  ]
}
> db.chaitanyaemp.insertMany([{{first_name:"luna",middle_name:"hek",last_name:"lovegood",age:37,salary:55000,designation:"taem_lead",role:"UI_designer"
},{first_name:"damon",middle_name:"vern",last_name:"salvatore",age:34,salary:55000,designation:"designer",role:"manager"}}])
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("6295a62cd3a1df6dde2f66ce"),
    ObjectId("6295a62cd3a1df6dde2f66cf")
  ]
}

```

```

"role" : "manager"
}
> db.chaitanyaemp.insertMany([{{first_name:"draco",middle_name:"ken",last_name:"malfoy",age:36,salary:70000,designation:"analyst",role:"team_lead"}},{f
rst_name:"ginny",middle_name:"kin",last_name:"weasley",age:30,salary:55000,designation:"scientist",role:"manager"}}])
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("6295ea69b1905d596e428838"),
    ObjectId("6295ea69b1905d596e428839")
  ]
}
> db.chaitanyaemp.insertMany([{{first_name:"albus",middle_name:"park",last_name:"dumbledore",age:40,salary:65000,designation:"UI designer",role:"team_l
ead"}},{first_name:"enola",middle_name:"kin",last_name:"holmes",age:38,salary:55000,designation:"scientist",role:"tester"}}])
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("6295eb25b1905d596e42883a"),
    ObjectId("6295eb25b1905d596e42883b")
  ]
}
> db.chaitanyaemp.insertMany([{{first_name:"rubius",middle_name:"kin",last_name:"hagrid",age:40,salary:65000,designation:"UI designer",role:"manager"}},
{first_name:"snape",middle_name:"dennis",last_name:"byers",age:38,salary:55000,designation:"associate",role:"tester"}}])
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("6295ec1ab1905d596e42883c"),
    ObjectId("6295ec1ab1905d596e42883d")
  ]
}

```

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

```
db.chaitanyaemp.find({$and:[ {salary: {$gt:20000}} , {salary: {$lt:35000}} ]})
```

```

db.chaitanyaemp.find({$and:[{salary:{$gt:20000}}, {salary:{$lt:35000}}]})
{ "_id" : ObjectId("6295a425d3a1df6dde2f66cc"), "first_name" : "satish", "middle_name" : "kumar", "last_name" : "varma", "age" : 32, "salary" : 31000,
"designation" : "developer", "role" : "team_lead" }
{ "_id" : ObjectId("6295a425d3a1df6dde2f66cd"), "first_name" : "renu", "middle_name" : "prakash", "last_name" : "sharma", "age" : 33, "salary" : 33300
"designation" : "designer", "role" : "tester" }

```

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

```
db.chaitanyaemp.find({middle_name:"kumar"})
```

```

> db.chaitanyaemp.find({middlename:"kumar"})
> db.chaitanyaemp.find({middle_name:"kumar"})
{ "_id" : ObjectId("6295a36cd3a1df6dde2f66ca"), "first_name" : "rajesh", "middle_name" : "kumar", "last_name" : "panja", "age" : 30, "salary" : 35000, "designation" : "scientist", "role" : "manager" }
{ "_id" : ObjectId("6295a425d3a1df6dde2f66cc"), "first_name" : "satish", "middle_name" : "kumar", "last_name" : "varma", "age" : 32, "salary" : 31000, "designation" : "developer", "role" : "team_lead" }
> db.chaitanyaemp.count({role:"manager"})
6

```

4. Count the number of Employees who have a role "Manager" in the Role field.

```
db.chaitanyaemp.count({role:"manager"})
```

6

```

> db.chaitanyaemp.count({role:"manager"})
6

```

5. Find out all the documents who have age < 35 and salary in the range of 30000-35000

```
db.chaitanyaemp.find({$and:[{salary:{>:30000}},{salary:{<:35000}},{age:{<:35}}]})
```

```

6
> db.chaitanyaemp.find({$and:[{salary:{>:30000}},{salary:{<:35000}},{age:{<:35}}]})
{ "_id" : ObjectId("6295a425d3a1df6dde2f66cc"), "first_name" : "satish", "middle_name" : "kumar", "last_name" : "varma", "age" : 32, "salary" : 31000, "designation" : "developer", "role" : "team_lead" }
{ "_id" : ObjectId("6295a425d3a1df6dde2f66cd"), "first_name" : "renu", "middle_name" : "prakash", "last_name" : "sharma", "age" : 33, "salary" : 33300, "designation" : "designer", "role" : "tester" }
>

```

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

```
db.chaitanyaemp.deleteOne({$and:[{first_name:"rajesh"},{designation:"scientist"}]})
```

```

reference to db.chaitanyaemp.deletedCount
> db.chaitanyaemp.deleteOne({$and:[{firstname:"rajesh"},{designation:"scientist"}]})
{ "acknowledged" : true, "deletedCount" : 0 }
> db.chaitanyaemp.find().pretty()
{
  "_id" : ObjectId("62959cd2d07f145e242b961b"),

```

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

```
db.chaitanyaemp.updateMany({role:"team_lead"},{$set:{salary:55650}})
```

> db.chaitanyaemp.find()

```
> db.chaitanyaemp.updateMany({role:"team_lead"},{$set:{salary:55650}})
{ "acknowledged" : true, "matchedCount" : 3, "modifiedCount" : 3 }
> db.chaitanyaemp.find()
{ "_id" : ObjectId("62959cd2d07f145e242b961b"), "first_name" : "Harry", "middle_name" : "james", "last_name" : "potter", "age" : 28, "salary" : 90000, "designation" : "tech_lead", "role" : "manager" }
{ "_id" : ObjectId("62959cd2d07f145e242b961c"), "first_name" : "ron", "middle_name" : "h", "last_name" : "weasly", "age" : 27, "salary" : 85000, "designation" : "software_designer", "role" : "tester" }
{ "_id" : ObjectId("6295a36cd3a1df6dde2f66ca"), "first_name" : "rajesh", "middle_name" : "kumar", "last_name" : "panja", "age" : 30, "salary" : 35000, "designation" : "scientist", "role" : "manager" }
{ "_id" : ObjectId("6295a36cd3a1df6dde2f66cb"), "first_name" : "sitara", "middle_name" : "srivatsav", "last_name" : "reddy", "age" : 35, "salary" : 55000, "designation" : "software_designer", "role" : "manager" }
{ "_id" : ObjectId("6295a425d3a1df6dde2f66cc"), "first_name" : "satish", "middle_name" : "kumar", "last_name" : "varma", "age" : 32, "salary" : 55650, "designation" : "developer", "role" : "team_lead" }
{ "_id" : ObjectId("6295a425d3a1df6dde2f66cd"), "first_name" : "renu", "middle_name" : "prakash", "last_name" : "sharma", "age" : 33, "salary" : 33300, "designation" : "designer", "role" : "tester" }
{ "_id" : ObjectId("6295a62cd3a1df6dde2f66ce"), "first_name" : "luna", "middle_name" : "hek", "last_name" : "lovegood", "age" : 37, "salary" : 55000, "designation" : "taem_lead", "role" : "UI_designer" }
{ "_id" : ObjectId("6295a62cd3a1df6dde2f66cf"), "first_name" : "damon", "middle_name" : "vern", "last_name" : "salvatore", "age" : 34, "salary" : 55000, "designation" : "designer", "role" : "manager" }
{ "_id" : ObjectId("6295ea69b1905d596e428838"), "first_name" : "draco", "middle_name" : "ken", "last_name" : "malfoy", "age" : 36, "salary" : 55650, "designation" : "analyst", "role" : "team_lead" }
{ "_id" : ObjectId("6295ea69b1905d596e428839"), "first_name" : "ginny", "middle_name" : "kim", "last_name" : "weasly", "age" : 30, "salary" : 55000, "designation" : "scientist", "role" : "manager" }
{ "_id" : ObjectId("6295eb25b1905d596e42883a"), "first_name" : "albus", "middle_name" : "park", "last_name" : "dumbledore", "age" : 40, "salary" : 55650, "designation" : "UI designer", "role" : "team_lead" }
{ "_id" : ObjectId("6295eb25b1905d596e42883b"), "first_name" : "enola", "middle_name" : "kim", "last_name" : "holmes", "age" : 38, "salary" : 55000, "designation" : "scientist", "role" : "tester" }
{ "_id" : ObjectId("6295ec1ab1905d596e42883c"), "first_name" : "rubius", "middle_name" : "kim", "last_name" : "hagrid", "age" : 40, "salary" : 65000, "designation" : "UI designer", "role" : "manager" }
```

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

```
db.chaitanyaemp.aggregate([{$group:{_id:"$age",Average:{$avg:"$salary"}}}
])
```

```
> db.chaitanyaemp.aggregate([{$group:{_id:"$age",Average:{$avg:"$salary"}}}])
{ "_id" : 33, "Average" : 33300 }
{ "_id" : 36, "Average" : 55650 }
{ "_id" : 40, "Average" : 60325 }
{ "_id" : 30, "Average" : 45000 }
{ "_id" : 27, "Average" : 85000 }
{ "_id" : 37, "Average" : 55000 }
{ "_id" : 32, "Average" : 55650 }
{ "_id" : 38, "Average" : 55000 }
{ "_id" : 35, "Average" : 55000 }
{ "_id" : 28, "Average" : 90000 }
{ "_id" : 34, "Average" : 55000 }
```

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

```
var mapfunction=function(){emit(this.age,this.salary)}
> var reducefunction=function(key,values){return Array.avg(values)}
> db.chaitanyaemp.mapReduce(mapfunction,reducefunction,{out:'result'})
> db.result.find()
```

```
var mapfunction=function(){emit(this.age,this.salary)}
var reducefunction=function(key,values){return Array.avg(values)}
db.chaitanyaemp.mapReduce(mapfunction,reducefunction,{out:'result'})
"result" : "result", "ok" : 1 }
db.result.find()
{"_id" : 33, "value" : 33300 }
{"_id" : 36, "value" : 55650 }
{"_id" : 40, "value" : 60325 }
{"_id" : 30, "value" : 45000 }
{"_id" : 27, "value" : 85000 }
{"_id" : 37, "value" : 55000 }
{"_id" : 32, "value" : 55650 }
{"_id" : 38, "value" : 55000 }
{"_id" : 35, "value" : 55000 }
{"_id" : 28, "value" : 90000 }
{"_id" : 34, "value" : 55000 }
```