Mapreduce

1.Calculate the Total Salary by Department

```
var mapFunction = function() {

    emit(this.department, this.salary);

};

var reduceFunction = function(key, values) {

    return Array.sum(values);

};

db.employees.mapReduce(

    mapFunction,

    reduceFunction,

    {

        out: "total_salary_by_department"
            query: { department: "IT" }
    }

);
```

```
test> var mapFunction = function() {
...     emit(this.department, this.salary);
... };

test> var reduceFunction = function(key, values) {
...     return Array.sum(values);
... };

test> db.employees.mapReduce(
...     mapFunction,
...     reduceFunction,
...     {
...         out: "total_salary_by_department"
...     }
... );
DeprecationWarning: Collection.mapReduce() is deprecated. Use an aggregation instead.
See https://docs.mongodb.com/manual/core/map-reduce for details.
{ result: 'total_salary_by_department', ok: 1 }
test> db.total_salary_by_department.find().pretty();
[
  { _id: 'Sales', value: 257000 },
  { _id: 'Marketing', value: 182000 },
  { _id: 'Design', value: 135000 },
  { _id: 'Finance', value: 178000 },
  { _id: 'IT', value: 360000 },
  { _id: 'HR', value: 120000 },
  { _id: 'Engineering', value: 277000 }
]
```

2.Count the Number of Employees by Skill

var mapFunction = function() {

   for (var i = 0; i < this.skills.length; i++) {

      emit(this.skills[i].name, 1);

   }

};

var reduceFunction = function(key, values) {

   return Array.sum(values);

};

db.employees.mapReduce(

   mapFunction,

   reduceFunction,

   {

      out: "employee_skill_count"

```
    }
);
```

```
]
test> var mapFunction = function() {
...     for (var i = 0; i < this.skills.length; i++) {
...         emit(this.skills[i].name, 1);
...     }
... };

test>

test> var reduceFunction = function(key, values) {
...     return Array.sum(values);
... };

test> db.employees.mapReduce(
...     mapFunction,
...     reduceFunction,
...     {
...         out: "employee_skill_count"
...     }
... );
{ result: 'employee_skill_count', ok: 1 }
test>  db.employee_skill_count.find().pretty();
[
  { _id: 'Market Research', value: 1 },
  { _id: 'Training & Development', value: 1 },
  { _id: 'Client Relations', value: 1 },
  { _id: 'AWS', value: 1 },
  { _id: 'Employee Relations', value: 1 },
  { _id: 'Sales Strategy', value: 1 },
  { _id: 'Graphic Design', value: 1 },
  { _id: 'Angular', value: 1 },
  { _id: 'Corporate Finance', value: 1 },
  { _id: 'Campaign Management', value: 1 },
  { _id: 'Illustration', value: 1 },
  { _id: 'Machine Learning', value: 1 },
  { _id: 'Employee Engagement', value: 1 },
  { _id: 'Spring Boot', value: 1 },
  { _id: 'Data Science', value: 1 },
```

2.Count the Number of Employees by department

```
var mapFunction = function() {

...     emit(this.department, 1);

... };

var reduceFunction = function(key, values) {

...     return Array.sum(values); // Sum the counts

... };

db.employees.mapReduce(
```

```
...     mapFunction,

...     reduceFunction,

...     {

...        out: "emp_count"
           query: { age: { $gt: 30 } }
...     }

... );
```

```
test> var mapFunction = function() {
...       emit(this.department, 1);
... };

test> var reduceFunction = function(key, values) {
...       return Array.sum(values); // Sum the counts
... };

test>

test> db.employees.mapReduce(
...       mapFunction,
...       reduceFunction,
...       {
...           out: "emp_count"
...       }
... );
{ result: 'emp_count', ok: 1 }
test> db.emp_count.find().pretty();
[
  { _id: 'Marketing', value: 3 },
  { _id: 'Finance', value: 2 },
  { _id: 'IT', value: 4 },
  { _id: 'HR', value: 2 },
  { _id: 'Engineering', value: 3 },
  { _id: 'Design', value: 2 },
  { _id: 'Sales', value: 3 }
]
```