Roll No-48

DBMS

Lab Assignment No-11

- Title: MongoDB - Map-reduce operation
  Implement Map reduce operation with eg using Mongo DB.

- Course objectives:
  Implement NoSQL queries using MongoDB

- Software Required: Mongodb

- Map-reduce is a data processing paradigm for condensing large volumes of data into useful aggregated results. MongoDB use mapReduce command for map-reduce operations

- Working of Mapper & Reducer function

Map-reduce is a two-step approach to data processing. First you map & then you reduce. The mapping results. MongoDB use mapReduce command for map-reduce operations. A mapper will start off by reading a collection of data & building a Map with only the required fields we wish to process & group them into one array based on the key.

Syntax of the basic mapReduce command:

In the above syntax:
- map is a javascript fun that maps a value with a key & emits a key-value pair
- reduce is a javascript fun that reduces or groups all the documents having the same key
- out specifies the location of the map-reduce query result
- query specifies the optional selection criteria for selecting documents
- sort specifies the optional sort criteria
- limit specifies the optional maximum no. of documents to be returned

- Map Reduce Example

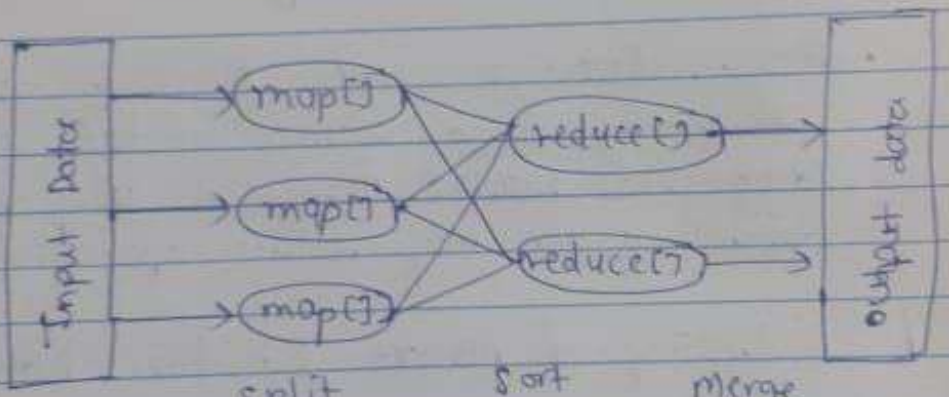
The below eg is to retrieve the sum of total values related to particular key

1) Insert data in mapCollection

```
db.mapc.insert ({key: "a", value: 2})
db.mapx.insert ({key: "a", value: 4})
```

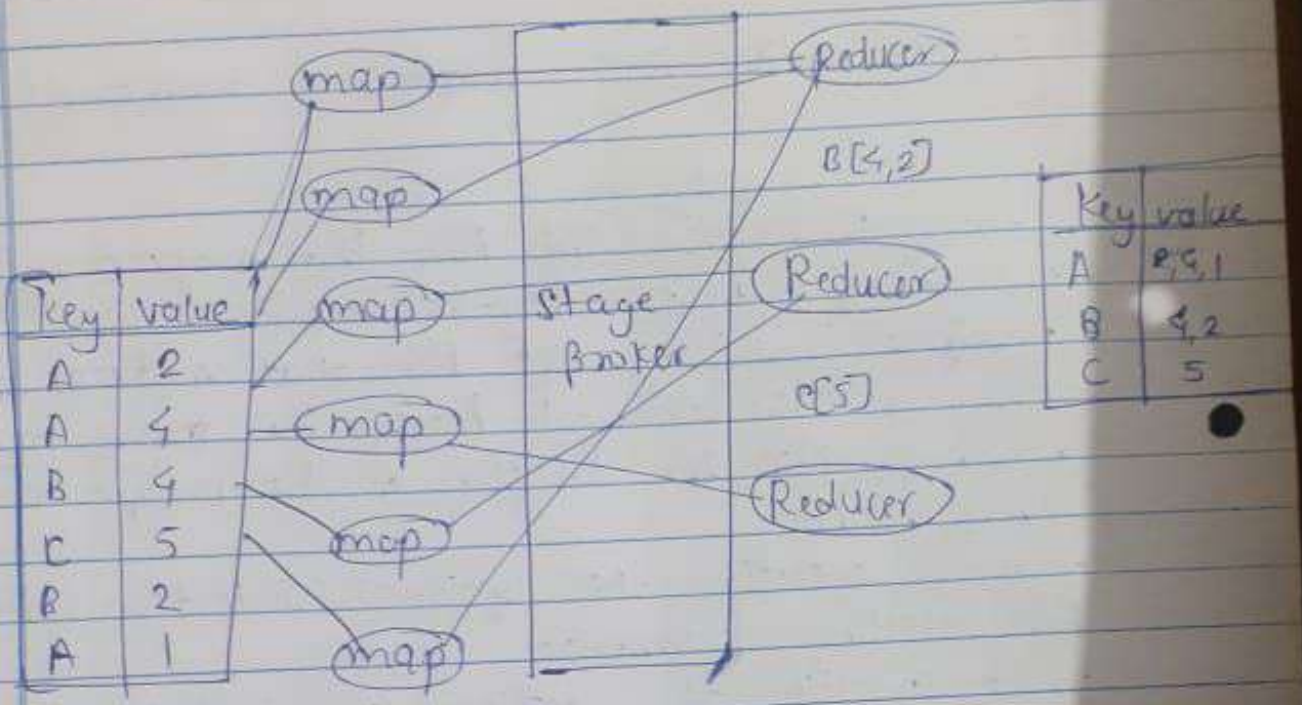
MapReduce Command:

Syntax of the basic mapReduce command:
db.collection.mapReduce(fun{})
function(key, value)
{out: collection, query: document, sort: document,
limit: number})



- The map-reduce fun first queries the collection, then maps the result documents to emit key-value pairs which is then reduced based on the keys that have multiple values. Map

MapReduce Command:
Syntax of the basic mapReduce command:



Key	value
A	2,4,1
B	4,2
C	5

A Conclusion:

We have implemented Map reduce using Mongodb successfully.