

Q1. What are different Aggregation commands?

Ans. 1. Aggregate:

- Performs aggregation tasks such as group using the aggregation framework.

2. Count:

- Counts the number of documents in a collection.

3. Distinct:

- Displays the distinct values found for a specified key in a collection.

4. Group:

- Groups documents in a collection by the specified key and performs simple aggregation.

5. mapReduce:

- Performs map-reduce to the aggregation pipeline.

Q2. What is map and reduce phase?

Ans. 1. Map-reduce is a data processing paradigm for condensing large volumes of data ~~and~~ into useful aggregated results.

- For map-reduce operations, MongoDB provides the mapReduce database command.

→ Syntax:

db.COLLECTION-NAME.mapReduce()

- In general, map-reduce ~~for~~ operations have two phases: a map stage that processes each document and emits one or more objects for each input document, and reduce phase that combines the

map output of the map operation.

- optionally, map-reduce can have finalize stage to make final modifications to the result.
- Like other aggregation operations, map-reduce can specify a query condition to select the input documents as well as sort and limit the results.

Q3. Explain map Reduce concurrency.

- Ans.
- Map-reduce concurrency is the process of managing locks during a map-reduce operation.
 - Map-reduce is a computer science technique that uses two steps, map and reduce, to process large amounts of data efficiently.
 - Here are some of the locks that are taken during a map-reduce operation:
 1. Read phase:
 - Takes a read lock and yields every 100 documents.
 2. Insert into temporary collection:
 - Takes a write lock for a single write.
 3. Create output collection:
 - Takes a write lock if the output collection doesn't exist.
 4. Output actions:
 - Takes a global write lock that blocks all operations on the mongoDB instance if the output collection exists.

Q4. Write steps for mapReduce operation with example.

Ans. • The steps for mapReduce operation are:

1. Define the map function
 - Process each statement from the collection by defining a map function.
2. Create ~~a~~ the reduce function:
 - Removes a single item from the values returned from the mapReduce process by creating a reduce function.
3. Perform the map-reduce process:
 - Use the map and reduce functions to perform the map-reduce process.
4. Check the results:
 - Use the necessary command to check the result ~~the~~ of the mapReduce command.

Q5. what is map-reduce Javascript function?

Ans. • The map() method is used for creating new array from an existing one, applying a function to each one of the elements of the first array.

→ Syntax:

```
var new_array = arr.map(function call back element,
                                index, array) {
```

Return value for new_array

```
} (, thisArg )
```

- The reduce () method reduces an array of values

down to just one value.

- To get the output value, it runs a reducer function on each element of the array.

• eg:

```
const numbers = [1, 2, 3, 4]
```

```
const sum = numbers.reduce(function (result, item) {  
  return result + item  
}, 0);
```