Multikey Index

MongoDB uses multikey indexes to index the content stored in arrays. To index a field that holds an array value, MongoDB creates an index key for each element in the array, i.e. creates separate index entries for every element of the array.

These *multikey* indexes support efficient queries against array fields. Multikey indexes can be constructed over arrays that hold both scalar values (e.g. strings, numbers) and nested documents.

The multikey indexes, created by MongoDB, allow queries to select documents that contain arrays by matching on element or elements of the arrays.

**Syntax**

\[
\text{db.collection\_name.createIndex( \{ <field>: value \} )}
\]

where

**Field** : is the name of the key in the collection

**Value** : 1 for ascending, -1 for descending

While creating an index, it is not required to explicitly specify the multikey type, MongoDB automatically determines whether to create a multikey index, if the specified indexed field contains an array value.

**Example:**

Let’s consider a collection **result** with following documents:
Lets create an index on “marks” key, which is an array on descending order

> db.result.createIndex({"marks": -1})

And if we run the command `getIndexes()`, it will display all the indexes in the collection `result`

> db.result.getIndexes()
It shows that an index on **marks key** has been created with name "**marks_-1**" and stored internally, but it will be a multikey index as it has been created on an array key.

**Compound Multikey Index**

Just like, creating a compound index, we may create a compound multikey index by specifying multiple keys in `createIndex` method.

**Syntax**

```javascript
db.collection.createIndex( { <field1>: <value>, <field2>: <value>, ... } )
```

where

- **Field** : is the name of the key in the collection
- **Value** : 1 for ascending , -1 for descending

**Example**

Lets create a compound multikey index on class and marks key, both in ascending order.

```javascript
> db.result.createIndex({"class":1, "marks":1})
```

This will create a compound index combining both the specified key , both in ascending order as we have specified the value as 1 in both the cases.

And if we display the created indexes on the result collection, with `getIndexes()` method, it will display both the created indexes.
Assignments

1. What are Multikey Indexes? How it is different from Compound index.

2. To create a multikey index, what is the syntax? Do we need to specify `multikey` keyword while creating a multikey index in MongoDB?