

## Output:

```
> db.createCollection('students')
{
    "ok" : 0,
    "errmsg" : "a collection 'test.students' already exists",
    "code" : 48,
    "codeName" : "NamespaceExists"
}
> db.students.insertMany([
... {name:"Amit",subject:"Math",marks:85,city:"Delhi"},  
... {name:"Riya",subject:"Science",marks:90,city:"Delhi"},  
... {name:"Karan",subject:"Math",marks:70,city:"Mumbai"},  
... {name:"Neha",subject:"Science",marks:80,city:"Mumbai"},  
... {name:"Priya",subject:"Math",marks:95,city:"Delhi"}  
... ])
{
    "acknowledged" : true,  
    "insertedIds" : [  
        ObjectId("68e73abe4d55f7bb64250758"),  
        ObjectId("68e73abe4d55f7bb64250759"),  
        ObjectId("68e73abe4d55f7bb6425075a"),  
        ObjectId("68e73abe4d55f7bb6425075b"),  
        ObjectId("68e73abe4d55f7bb6425075c")  
    ]
}
> db.students.find()
2025-10-09T10:02:25.342+0530 E QUERY      [thread1] TypeError: db.students.fing is not a function :
@(shell):1:1
> db.students.find()
[{"_id": ObjectId("68e73abe4d55f7bb64250758"), "name": "Amit", "subject": "Math", "marks": 85, "city": "Delhi"}, {"_id": ObjectId("68e73abe4d55f7bb64250759"), "name": "Riya", "subject": "Science", "marks": 90, "city": "Delhi"}, {"_id": ObjectId("68e73abe4d55f7bb6425075a"), "name": "Karan", "subject": "Math", "marks": 70, "city": "Mumbai"}, {"_id": ObjectId("68e73abe4d55f7bb6425075b"), "name": "Neha", "subject": "Science", "marks": 80, "city": "Mumbai"}, {"_id": ObjectId("68e73abe4d55f7bb6425075c"), "name": "Priya", "subject": "Math", "marks": 95, "city": "Delhi"}]
> db.students.aggregate([
... { $group: { _id: "$subject", totalMarks: { $sum: "$marks" } } }
... ])
[{"_id": "Science", "totalMarks": 170}, {"_id": "Math", "totalMarks": 250}]
```

```
> db.students.aggregate([
... { $group: { _id: "$subject", avgMarks: { $avg: "$marks" } } }
... ])
[{"_id": "Science", "avgMarks": 85}, {"_id": "Math", "avgMarks": 83.33333333333333}]
> db.students.aggregate([
... { $match: { marks: { $gt: 80 } } }
... ])
[{"_id": ObjectId("68e73abe4d55f7bb64250758"), "name": "Amit", "subject": "Math", "marks": 85, "city": "Delhi"}, {"_id": ObjectId("68e73abe4d55f7bb64250759"), "name": "Riya", "subject": "Science", "marks": 90, "city": "Delhi"}, {"_id": ObjectId("68e73abe4d55f7bb6425075c"), "name": "Priya", "subject": "Math", "marks": 95, "city": "Delhi"}]
```

```
Activities Terminal Oct 9 10:27 ● user@user: ~
> db.students.aggregate([
... { $group: { _id: "$subject", avgMarks: { $avg: "$marks" } } },
... { $sort: { avgMarks: -1 } }
...
{ "_id" : "Science", "avgMarks" : 85 }
{ "_id" : "Math", "avgMarks" : 83.33333333333333 }
> db.students.aggregate([
... { $group: { _id: { city: "$city", subject: "$subject" }, avgMarks: { $avg: "$marks" } } }
...
{ "_id" : { "city" : "Mumbai", "subject" : "Science" }, "avgMarks" : 80 }
{ "_id" : { "city" : "Mumbai", "subject" : "Math" }, "avgMarks" : 70 }
{ "_id" : { "city" : "Delhi", "subject" : "Science" }, "avgMarks" : 90 }
{ "_id" : { "city" : "Delhi", "subject" : "Math" }, "avgMarks" : 90 }
> db.students.aggregate([
... { $group: { _id: { city: "$city", subject: "$subject" }, avgMarks: { $avg: "$marks" } } },
... { $project: { _id: 0, city: "$_id.city", subject: "$_id.subject", avgMarks: 1
... } }
...
{ "avgMarks" : 80, "city" : "Mumbai", "subject" : "Science" }
{ "avgMarks" : 70, "city" : "Mumbai", "subject" : "Math" }
{ "avgMarks" : 90, "city" : "Delhi", "subject" : "Science" }
{ "avgMarks" : 90, "city" : "Delhi", "subject" : "Math" }
> db.students.aggregate([
... { $group:{_id:"$subject",totolMarks:{$sum:"$marks"}},,
... {$sort:{totalMarks:-1}},
... {$limit:2}
...
{ "_id" : "Science", "totolMarks" : 170 }
{ "_id" : "Math", "totolMarks" : 250 }
> db.students.insertOne({name:"Sam",hobbies:["reading","music","coding"]})
{
    "acknowledged" : true,
    "insertedId" : ObjectId("68e73f994d55f7bb6425075d")
}
> db.students.aggregate([{$unwind:"$hobbies"}])
{ "_id" : ObjectId("68e73f994d55f7bb6425075d"), "name" : "Sam", "hobbies" : "reading" }
{ "_id" : ObjectId("68e73f994d55f7bb6425075d"), "name" : "Sam", "hobbies" : "music" }
```

```
Activities Terminal Oct 9 10:41 ● user@user: ~
> db.stduents.createIndex({city:1})
{
    "createdCollectionAutomatically" : true,
    "numIndexesBefore" : 1,
    "numIndexesAfter" : 2,
    "ok" : 1
}
> db.students.getIndexes()
[
    {
        "v" : 2,
        "key" : {
            "_id" : 1
        },
        "name" : "_id_",
        "ns" : "test.students"
    }
]
> db.students.createIndex({city:1,subject:1})
{
    "createdCollectionAutomatically" : false,
    "numIndexesBefore" : 1,
    "numIndexesAfter" : 2,
    "ok" : 1
}
> db.students.dropIndex({city:1})
{
    "nIndexesWas" : 2,
    "ok" : 0,
    "errmsg" : "can't find index with key: { city: 1.0 }",
    "code" : 27,
    "codeName" : "IndexNotFound"
}
> db.students.find({city:"Delhi"}).explain("executionStats")
{
    "queryPlanner" : {
        "plannerVersion" : 1,
        "namespace" : "test.students",
        "indexFilteringSearched" : false,
```

```
Activities Terminal Oct 9 10:41 ● user@user: ~
    "namespace" : "test.students",
    "indexFilterSet" : false,
    "parsedQuery" : {
        "city" : {
            "$eq" : "Delhi"
        }
    },
    "winningPlan" : {
        "stage" : "FETCH",
        "inputStage" : {
            "stage" : "IXSCAN",
            "keyPattern" : {
                "city" : 1,
                "subject" : 1
            },
            "indexName" : "city_1_subject_1",
            "isMultiKey" : false,
            "multiKeyPaths" : {
                "city" : [ ],
                "subject" : [ ]
            },
            "isUnique" : false,
            "isSparse" : false,
            "isPartial" : false,
            "indexVersion" : 2,
            "direction" : "forward",
            "indexBounds" : {
                "city" : [
                    "[\"Delhi\", \"Delhi\"]"
                ],
                "subject" : [
                    "[MinKey, MaxKey]"
                ]
            }
        }
    },
    "rejectedPlans" : [ ]
},
"executionStats" : {
```

```
Activities Terminal Oct 9 10:42 ● user@user: ~
    "executionStats" : {
        "executionSuccess" : true,
        "nReturned" : 3,
        "executionTimeMillis" : 0,
        "totalKeysExamined" : 3,
        "totalDocsExamined" : 3,
        "executionStages" : {
            "stage" : "FETCH",
            "nReturned" : 3,
            "executionTimeMillisEstimate" : 0,
            "works" : 4,
            "advanced" : 3,
            "needTime" : 0,
            "needYield" : 0,
            "saveState" : 0,
            "restoreState" : 0,
            "isEOF" : 1,
            "invalidates" : 0,
            "docsExamined" : 3,
            "alreadyHasObj" : 0,
            "inputStage" : {
                "stage" : "IXSCAN",
                "nReturned" : 3,
                "executionTimeMillisEstimate" : 0,
                "works" : 4,
                "advanced" : 3,
                "needTime" : 0,
                "needYield" : 0,
                "saveState" : 0,
                "restoreState" : 0,
                "isEOF" : 1,
                "invalidates" : 0,
                "keyPattern" : {
                    "city" : 1,
                    "subject" : 1
                },
                "indexName" : "city_1_subject_1",
                "isMultiKey" : false,
                "multiKeyPaths" : {
```

```
Activities Terminal Oct 9 10:42 ● user@user: ~
[{"subject": [{}], "isUnique": false, "isSparse": false, "isPartial": false, "indexVersion": 2, "direction": "forward", "indexBounds": [{"city": [{"$in": ["Delhi", "Delhi"]}], "subject": [{"$in": [MinKey, MaxKey]}]}]}, {"keysExamined": 3, "seeks": 1, "dupsTested": 0, "dupsDropped": 0, "seenInvalidated": 0}], }, {"serverInfo": {"host": "user", "port": 27017, "version": "3.6.8", "gitVersion": "8e540c0b6db93ce994cc548f000900bdc740f80a"}, "ok": 1}, {"ok": 1}, {"> db.students.createIndex({name:"text"})}, {"createdCollectionAutomatically": false, "numIndexesBefore": 2, "numIndexesAfter": 3, "ok": 1}, {"> db.students.find({ $text: { $search: "Priya" } })}, {"_id": ObjectId("68e73abe4d55f7bb6425075c"), "name": "Priya", "subject": "Math", "marks": 95, "city": "Delhi"}, {"> db.students.createIndex({ name: "hashed" })}, {"createdCollectionAutomatically": false, "numIndexesBefore": 3, "numIndexesAfter": 4, "ok": 1}, {"> db.students.createIndex({ city: 1 })}, {"createdCollectionAutomatically": false, "numIndexesBefore": 4, "numIndexesAfter": 5, "ok": 1}, {"> db.students.aggregate([{$match: { city: "Delhi" } }, {$group: { _id: "$subject", total: { $sum: "$marks" } } }])}, {"_id": "Science", "total": 90}, {"_id": "Math", "total": 180}, {"> db.students.createIndex({ name: "hashed" })}, {"numIndexesBefore": 5, "numIndexesAfter": 5, "note": "all indexes already exist", "ok": 1}
```

```
Activities Terminal Oct 9 10:43 ● user@user: ~
[{"subject": [{}], "isUnique": false, "isSparse": false, "isPartial": false, "indexVersion": 2, "direction": "forward", "indexBounds": [{"city": [{"$in": ["Delhi", "Delhi"]}], "subject": [{"$in": [MinKey, MaxKey]}]}]}, {"keysExamined": 3, "seeks": 1, "dupsTested": 0, "dupsDropped": 0, "seenInvalidated": 0}], }, {"serverInfo": {"host": "user", "port": 27017, "version": "3.6.8", "gitVersion": "8e540c0b6db93ce994cc548f000900bdc740f80a"}, "ok": 1}, {"ok": 1}, {"> db.students.createIndex({name:"text"})}, {"createdCollectionAutomatically": false, "numIndexesBefore": 2, "numIndexesAfter": 3, "ok": 1}, {"> db.students.find({ $text: { $search: "Priya" } })}, {"_id": ObjectId("68e73abe4d55f7bb6425075c"), "name": "Priya", "subject": "Math", "marks": 95, "city": "Delhi"}, {"> db.students.createIndex({ name: "hashed" })}, {"createdCollectionAutomatically": false, "numIndexesBefore": 3, "numIndexesAfter": 4, "ok": 1}, {"> db.students.createIndex({ city: 1 })}, {"createdCollectionAutomatically": false, "numIndexesBefore": 4, "numIndexesAfter": 5, "ok": 1}, {"> db.students.aggregate([{$match: { city: "Delhi" } }, {$group: { _id: "$subject", total: { $sum: "$marks" } } }])}, {"_id": "Science", "total": 90}, {"_id": "Math", "total": 180}, {"> db.students.createIndex({ name: "hashed" })}, {"numIndexesBefore": 5, "numIndexesAfter": 5, "note": "all indexes already exist", "ok": 1}
```