

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.find 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", totalMarks: { $sum: "$marks" } } },
... { $sort: { totalMarks: -1 } },
... { $limit: 2 }
... ])
{ "_id" : "Science", "totalMarks" : 170 }
{ "_id" : "Math", "totalMarks" : 250 }
> db.students.insertOne({name:"Sam",hobbies:["reading","music","coding"]})
{
  "acknowledged" : true,
  "insertedId" : ObjectId("68e73f994d55f7bb6425075d")
}
> db.students.aggregate([{$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.students.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",
    "indexFiltering" : false,
    "candidateIndexes" : [
      {
        "key" : {
          "city" : 1
        },
        "name" : "city_1"
      },
      {
        "key" : {
          "city" : 1,
          "subject" : 1
        },
        "name" : "city_1_subject_1"
      }
    ],
    "chosenIndex" : {
        "key" : {
          "city" : 1
        },
        "name" : "city_1"
      }
    ],
    "estimatedDocumentCount" : 2,
    "executionStats" : {
      "executionTimeMillisEstimate" : 0,
      "workItems" : 1,
      "totalKeysSkipped" : 0
    }
  }
}
```

```
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" : [
    ["\Delhi\","\Delhi\"]
  ],
  "subject" : [
    ["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
}
}
> db.students.createIndex({name:"text"})
{
  "createdCollectionAutomatically" : false,
  "numIndexesBefore" : 2,
  "numIndexesAfter" : 3,
  "ok" : 1
}
```

```
Activities Terminal Oct 9 10:43 user@user: ~
}
> 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
}
```