C:\Users\Sakshi Rathi>mongosh

Current Mongosh Log ID: 684673b9295b637b8f6c4bcf

Connecting to: mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.5.1

Using MongoDB: 8.0.9

Using Mongosh: 2.5.1
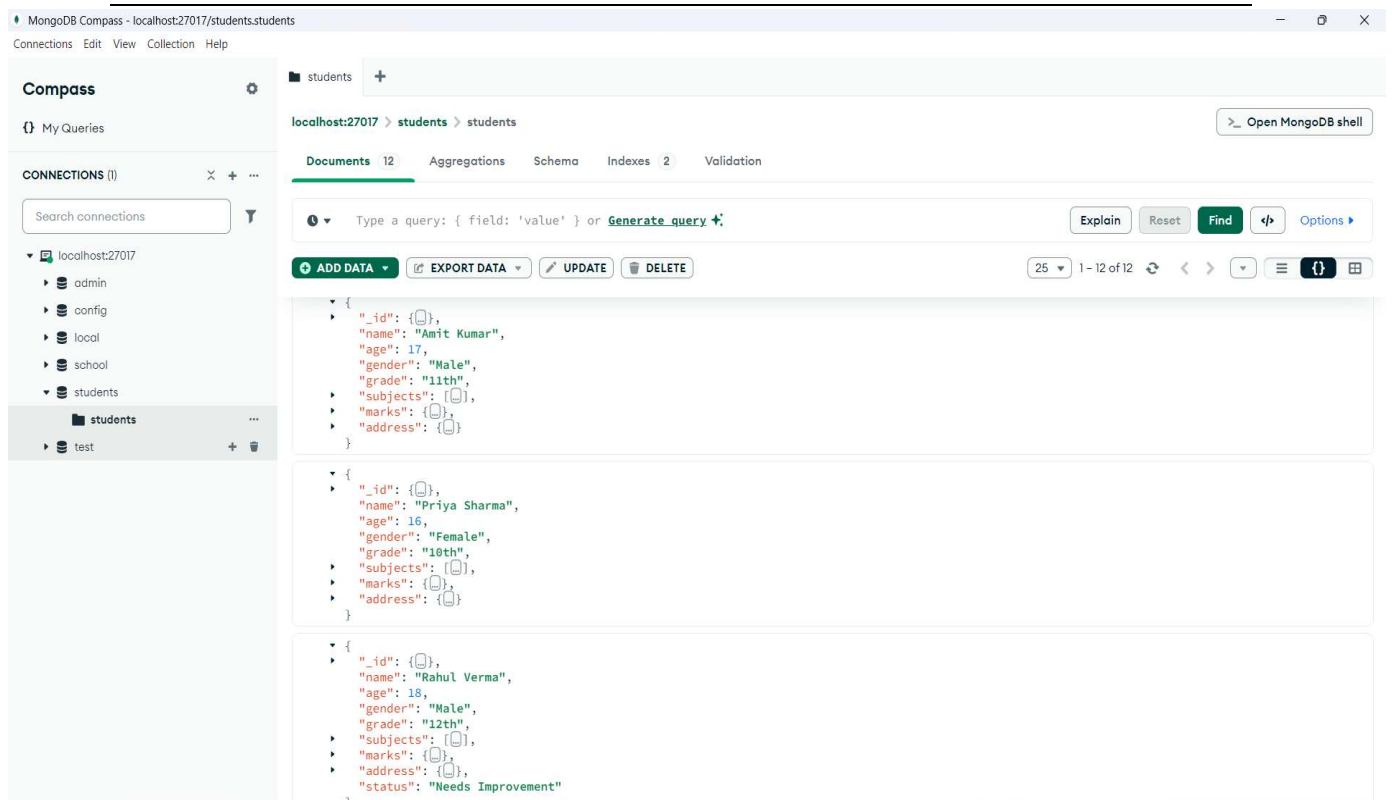
mongosh 2.5.2 is available for download: https://www.mongodb.com/try/download/shell

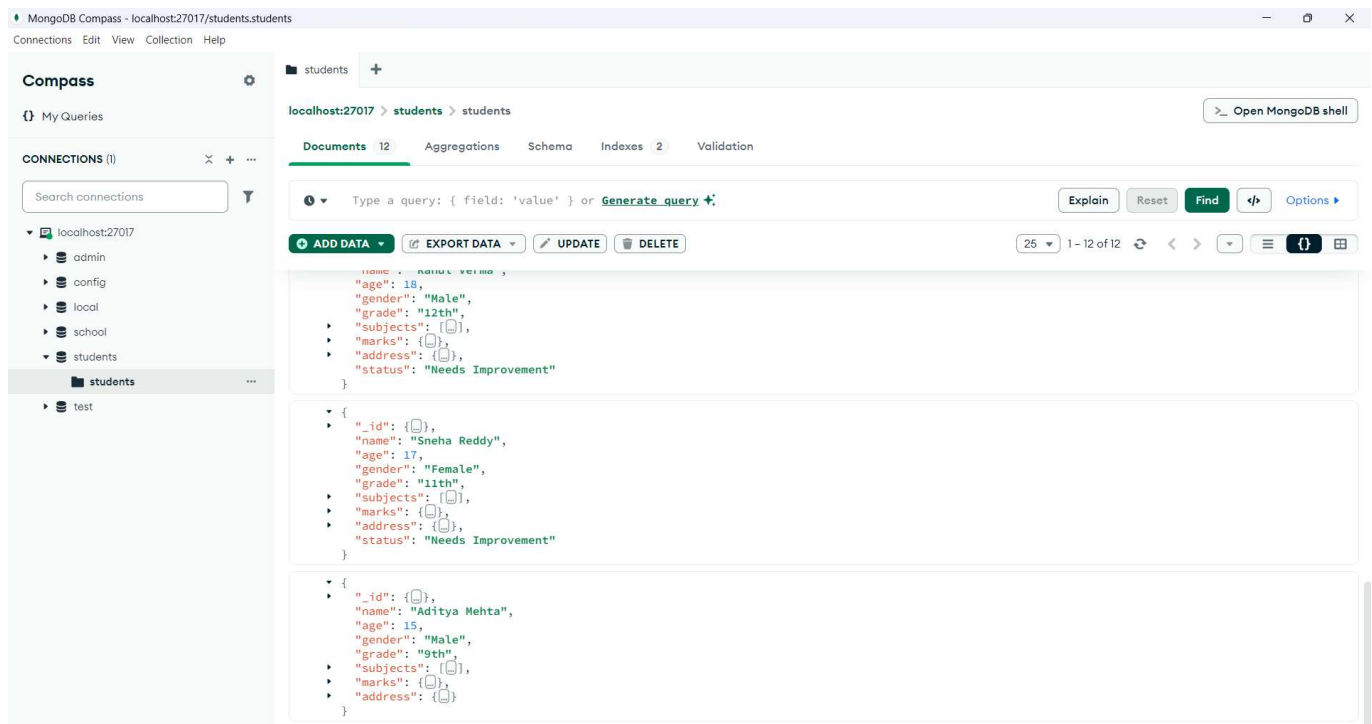For mongosh info see: https://www.mongodb.com/docs/mongodb-shell/

  The server generated these startup warnings when booting

  2025-06-06T15:19:23.057+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted

test> **use students**

switched to db students

Q1. Insert 5 student records

students> db.students.insertMany([

... {

...   name: "Amit Kumar",

...   age: 17,

...   gender: "Male",

...   grade: "11th",

...   subjects: ["Math", "Physics", "English"],

...   marks: { Math: 82, Physics: 91, English: 75 },

...   address: { city: "Delhi", pincode: "110001" }

... },

```
... {
...   name: "Priya Sharma",
...   age: 16,
...   gender: "Female",
...   grade: "10th",
...   subjects: ["Biology", "English", "Chemistry"],
...   marks: { Biology: 78, English: 69, Chemistry: 88 },
...   address: { city: "Mumbai", pincode: "400001" }
... },
... {
...   name: "Rahul Verma",
...   age: 18,
...   gender: "Male",
...   grade: "12th",
...   subjects: ["Math", "Computer", "English"],
...   marks: { Math: 35, Computer: 95, English: 92 },
...   address: { city: "Delhi", pincode: "110002" }
... },
... {
...   name: "Sneha Reddy",
...   age: 17,
...   gender: "Female",
...   grade: "11th",
...   subjects: ["Math", "Physics", "Chemistry"],
...   marks: { Math: 88, Physics: 37, Chemistry: 41 },
...   address: { city: "Hyderabad", pincode: "500001" }
... },
... {
```

```
...     name: "Aditya Mehta",

...     age: 15,

...     gender: "Male",

...     grade: "9th",

...     subjects: ["English", "History", "Civics"],

...     marks: { English: 55, History: 67, Civics: 72 },

...     address: { city: "Ahmedabad", pincode: "380001" }

...   }

... ])

...

{

  acknowledged: true,

  insertedIds: {

    '0': ObjectId('684673c3295b637b8f6c4bd0'),

    '1': ObjectId('684673c3295b637b8f6c4bd1'),

    '2': ObjectId('684673c3295b637b8f6c4bd2'),

    '3': ObjectId('684673c3295b637b8f6c4bd3'),

    '4': ObjectId('684673c3295b637b8f6c4bd4')

  }

}
```

Q2. Find all students who take "Math" as a subject

```
students> db.students.find(

... { subjects: "Math" },

... { name: 1, grade: 1, subjects: 1, _id: 0 }

... )

...

[
```

```
  { name: 'Ram', subjects: [ 'Math', 'English', 'Science' ] },
  {
    name: 'Amit Kumar',
    grade: '11th',
    subjects: [ 'Math', 'Physics', 'English' ]
  },
  {
    name: 'Rahul Verma',
    grade: '12th',
    subjects: [ 'Math', 'Computer', 'English' ]
  },
  {
    name: 'Sneha Reddy',
    grade: '11th',
    subjects: [ 'Math', 'Physics', 'Chemistry' ]
  }
]
```

Q3. Find students from city "Delhi" scoring more than 85 in Physics

```
students> db.students.find(
...  {
...    "address.city": "Delhi",
...    "marks.Physics": { $gt: 85 }
...  },
...  { name: 1, marks: 1, "address.city": 1, _id: 0 }
... )
...
[
```

```
  {
    name: 'Amit Kumar',
    marks: { Math: 82, Physics: 91, English: 75 },
    address: { city: 'Delhi' }
  }
]
```

Q4. Sort all students by English marks (descending) and show top 3

```
students> db.students.find(
...  { "marks.English": { $exists: true } },
...  { name: 1, subjects: 1, marks: 1, _id: 0 }
... ).sort({ "marks.English": -1 }).limit(3)
...
[
  {
    name: 'Rahul Verma',
    subjects: [ 'Math', 'Computer', 'English' ],
    marks: { Math: 35, Computer: 95, English: 92 }
  },
  {
    name: 'Amit Kumar',
    subjects: [ 'Math', 'Physics', 'English' ],
    marks: { Math: 82, Physics: 91, English: 75 }
  },
  {
    name: 'Priya Sharma',
    subjects: [ 'Biology', 'English', 'Chemistry' ],
    marks: { Biology: 78, English: 69, Chemistry: 88 }
```

```
  }
]
```

Q5. Group students by city and count how many are from each

```
students> db.students.aggregate([
... {
...    $group: {
...     _id: "$address.city",
...     count: { $sum: 1 }
...    }
... }
... ])
...
[
 { _id: 'Ahmedabad', count: 1 },
 { _id: 'Mumbai', count: 1 },
 { _id: null, count: 6 },
 { _id: 'Delhi', count: 3 },
 { _id: 'Hyderabad', count: 1 }
]
```

Q6. Update all students who scored less than 40 in any subject

```
students> db.students.updateMany(
... {
...    $or: [
...     { "marks.Math": { $lt: 40 } },
...     { "marks.Physics": { $lt: 40 } },
...     { "marks.English": { $lt: 40 } },
```

```
...        { "marks.Chemistry": { $lt: 40 } },

...        { "marks.Biology": { $lt: 40 } },

...        { "marks.Computer": { $lt: 40 } },

...        { "marks.History": { $lt: 40 } },

...        { "marks.Civics": { $lt: 40 } }

...      ]

...    },

...    { $set: { status: "Needs Improvement" } }

... )

...
{
  acknowledged: true,

  insertedId: null,

  matchedCount: 2,

  modifiedCount: 2,

  upsertedCount: 0
}
students> db.students.aggregate([

...    { $match: { "marks.English": { $exists: true } } },

...    { $group: { _id: null, avgEnglish: { $avg: "$marks.English" } } }

... ])

...
[ { _id: null, avgEnglish: 72.75 } ]


students> db.students.aggregate([

...    { $match: { "marks.Math": { $exists: true } } },

...    { $group: { _id: null, avgMath: { $avg: "$marks.Math" } } }

... ])
```

[{ _id: null, avgMath: 68.33333333333333 }]

students> db.students.aggregate([

...   { $match: { "marks.Physics": { $exists: true } } },

...   { $group: { _id: null, avgPhysics: { $avg: "$marks.Physics" } } }

...])

...

[{ _id: null, avgPhysics: 64 }]

- Display all records in students database

students> db.students.find().pretty()

```
[
 {
  _id: ObjectId('683ec3f84d0e8984fe6c4bd0'),
   name: 'sakshi',
   age: 20
 },
 {
  _id: ObjectId('683ec4894d0e8984fe6c4bd1'),
   name: 'sakshi',
   age: 21
 },
 { _id: ObjectId('683ec4894d0e8984fe6c4bd2'), name: 'Jack', age: 25 },
 {
  _id: ObjectId('683ec4894d0e8984fe6c4bd3'),
   name: 'sakshi',
   age: 22
 },
```

```
{
  _id: ObjectId('684659ff776c6542a36c4bd0'),
  name: 'sakshi',
  age: 21
},
{
  _id: ObjectId('68465f73776c6542a36c4bd1'),
  name: 'Sita',
  age: 22,
  address: { city: 'Delhi', zip: '110001' }
},
{
  _id: ObjectId('68465ff1776c6542a36c4bd2'),
  name: 'Ram',
  subjects: [ 'Math', 'English', 'Science' ]
},
{
  _id: ObjectId('684673c3295b637b8f6c4bd0'),
  name: 'Amit Kumar',
  age: 17,
  gender: 'Male',
  grade: '11th',
  subjects: [ 'Math', 'Physics', 'English' ],
  marks: { Math: 82, Physics: 91, English: 75 },
  address: { city: 'Delhi', pincode: '110001' }
},
{
  _id: ObjectId('684673c3295b637b8f6c4bd1'),
```

```
    name: 'Priya Sharma',

    age: 16,

    gender: 'Female',

    grade: '10th',

    subjects: [ 'Biology', 'English', 'Chemistry' ],

    marks: { Biology: 78, English: 69, Chemistry: 88 },

    address: { city: 'Mumbai', pincode: '400001' }

  },

  {

    _id: ObjectId('684673c3295b637b8f6c4bd2'),

    name: 'Rahul Verma',

    age: 18,

    gender: 'Male',

    grade: '12th',

    subjects: [ 'Math', 'Computer', 'English' ],

    marks: { Math: 35, Computer: 95, English: 92 },

    address: { city: 'Delhi', pincode: '110002' },

    status: 'Needs Improvement'

  },

  {

    _id: ObjectId('684673c3295b637b8f6c4bd3'),

    name: 'Sneha Reddy',

    age: 17,

    gender: 'Female',

    grade: '11th',

    subjects: [ 'Math', 'Physics', 'Chemistry' ],

    marks: { Math: 88, Physics: 37, Chemistry: 41 },

    address: { city: 'Hyderabad', pincode: '500001' },
```

```
    status: 'Needs Improvement'
  },
  {
    _id: ObjectId('684673c3295b637b8f6c4bd4'),
    name: 'Aditya Mehta',
    age: 15,
    gender: 'Male',
    grade: '9th',
    subjects: [ 'English', 'History', 'Civics' ],
    marks: { English: 55, History: 67, Civics: 72 },
    address: { city: 'Ahmedabad', pincode: '380001' }
  }
]
students>
```