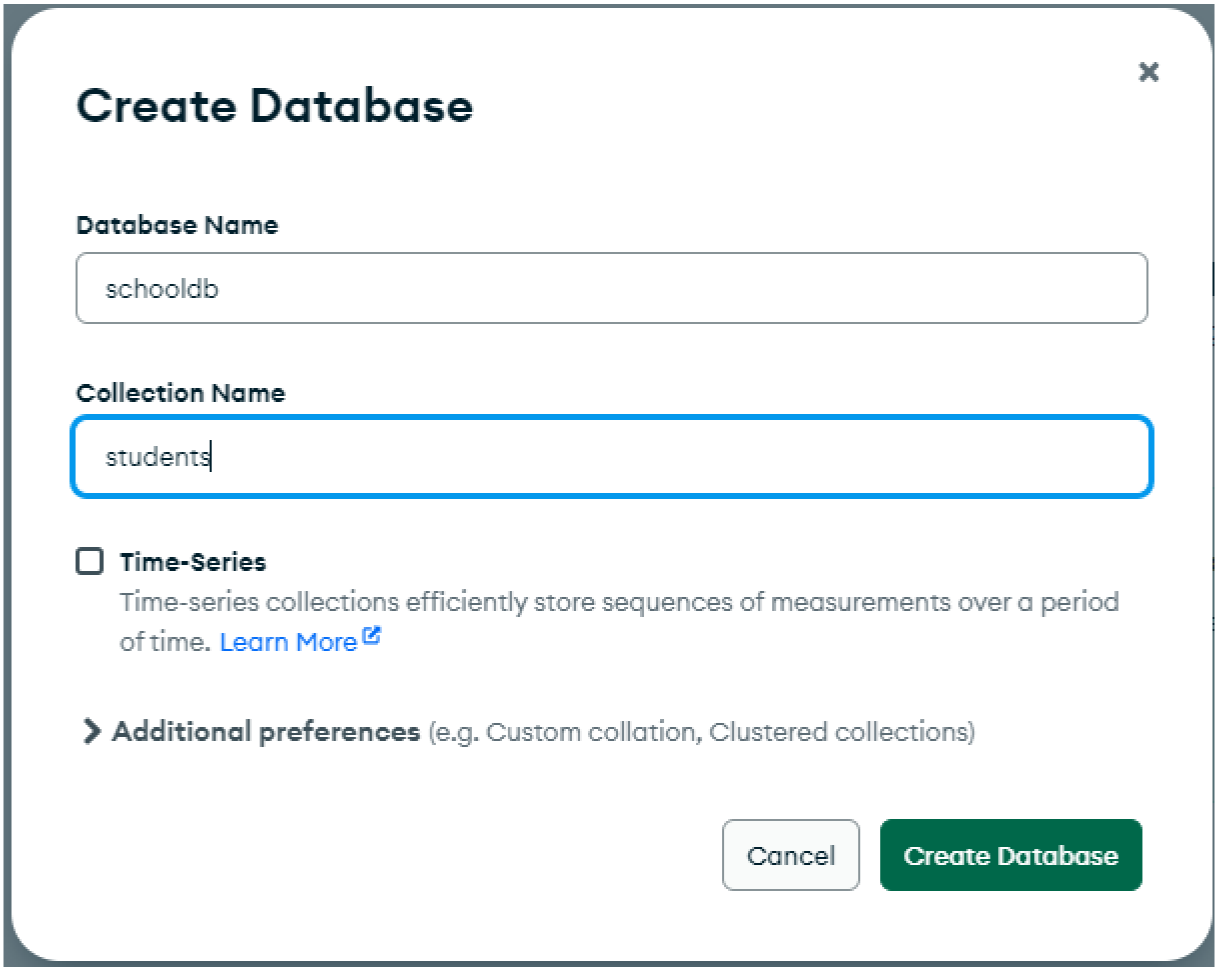
IT-2234(Practical Exam)

ICAE02

01.Create Database and Collection

Create the students and grades collections and insert the sample documents into both collections.



Create Database

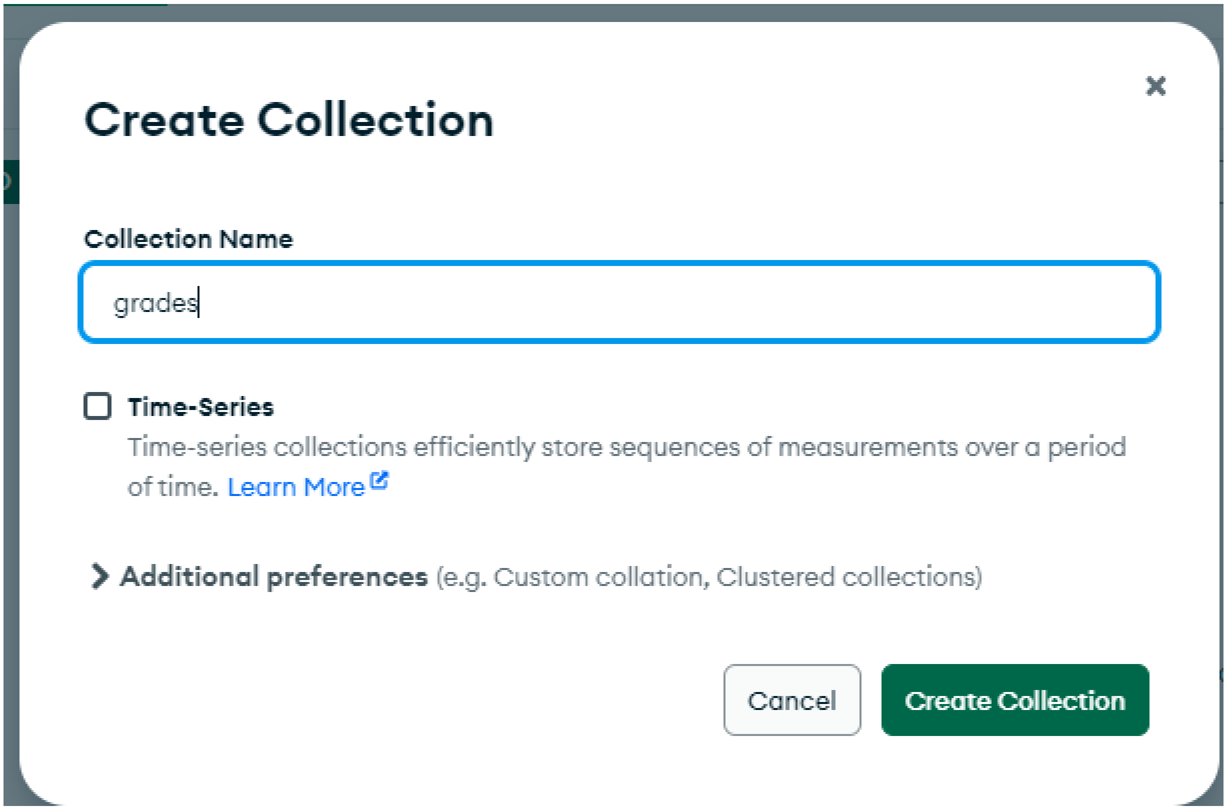
Database Name: schooldb

Collection Name: students

□ Time-Series

Time-series collections efficiently store sequences of measurements over a period of time. Learn More

Additional preferences (e.g. Custom collation, Clustered collections)
Cancel
Create Database



Create Collection

Collection Name

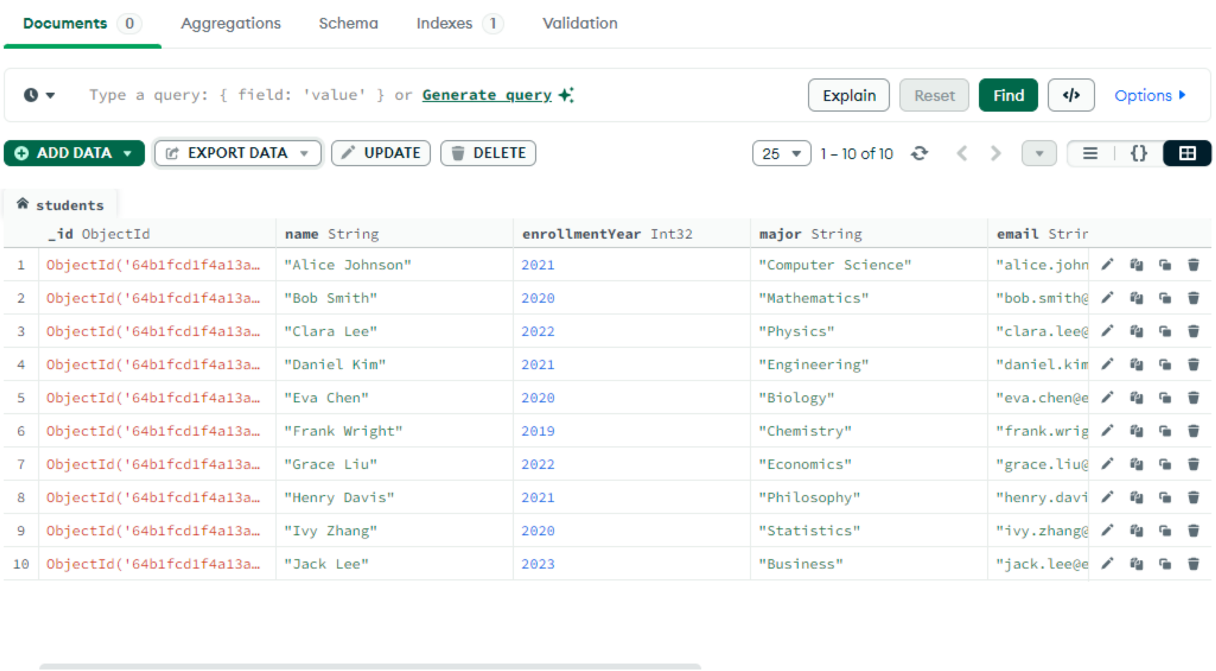
grades

□ Time-Series

Time-series collections efficiently store sequences of measurements over a period of time. Learn More

> Additional preferences (e.g. Custom collation, Clustered collections)

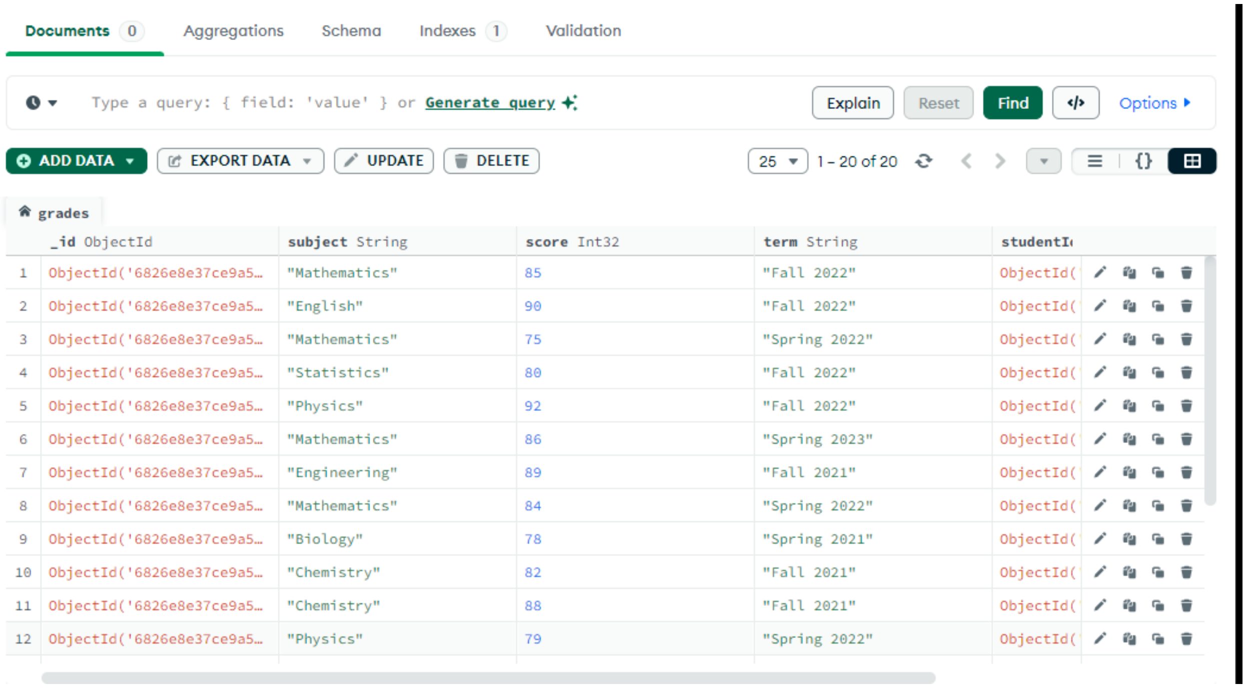
02. Show both collections in table view.



Type a query: { field: 'value' } or Generate query

students

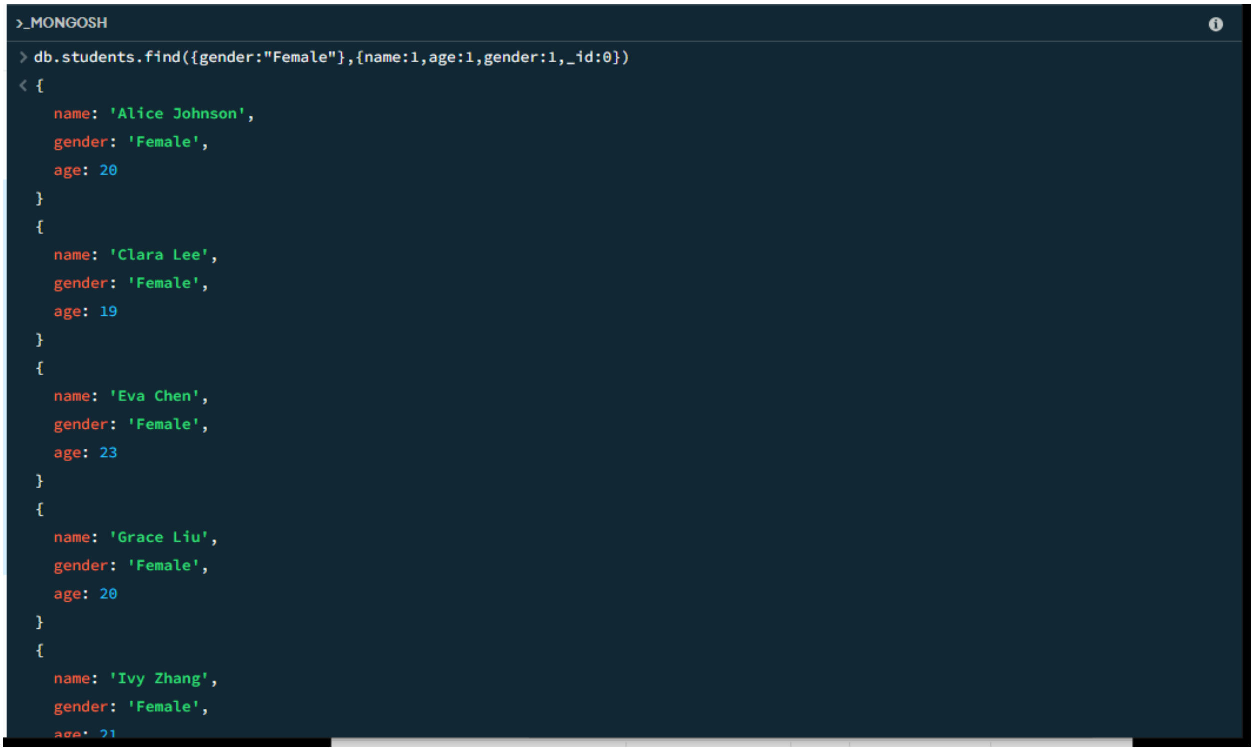
	_id ObjectId	name String	enrollmentYear Int32	major String	email Strir
1	ObjectId('64b1fcd1f4a13a…	"Alice Johnson"	2021	"Computer Science"	"alice.john
2	ObjectId('64b1fcd1f4a13a…	"Bob Smith"	2020	"Mathematics"	"bob.smith@
3	ObjectId('64b1fcd1f4a13a…	"Clara Lee"	2022	"Physics"	"clara.lee@
4	ObjectId('64b1fcd1f4a13a…	"Daniel Kim"	2021	"Engineering"	"daniel.kim
5	ObjectId('64b1fcd1f4a13a…	"Eva Chen"	2020	"Biology"	"eva.chen@e
6	ObjectId('64b1fcd1f4a13a…	"Frank Wright"	2019	"Chemistry"	"frank.wrig
7	ObjectId('64b1fcd1f4a13a…	"Grace Liu"	2022	"Economics"	"grace.liu@
8	ObjectId('64b1fcd1f4a13a…	"Henry Davis"	2021	"Philosophy"	"henry.davi
9	ObjectId('64b1fcd1f4a13a…	"Ivy Zhang"	2020	"Statistics"	"ivy.zhang@
10	ObjectId('64b1fcd1f4a13a…	"Jack Lee"	2023	"Business"	"jack.lee@e



	_id ObjectId	subject String	score Int32	term String	studentI
1	ObjectId('6826e8e37ce9a5…	"Mathematics"	85	"Fall 2022"	ObjectId(
2	ObjectId('6826e8e37ce9a5…	"English"	90	"Fall 2022"	ObjectId(
3	ObjectId('6826e8e37ce9a5…	"Mathematics"	75	"Spring 2022"	ObjectId(
4	ObjectId('6826e8e37ce9a5…	"Statistics"	80	"Fall 2022"	ObjectId(
5	ObjectId('6826e8e37ce9a5…	"Physics"	92	"Fall 2022"	ObjectId(
6	ObjectId('6826e8e37ce9a5…	"Mathematics"	86	"Spring 2023"	ObjectId(
7	ObjectId('6826e8e37ce9a5…	"Engineering"	89	"Fall 2021"	ObjectId(
8	ObjectId('6826e8e37ce9a5…	"Mathematics"	84	"Spring 2022"	ObjectId(
9	ObjectId('6826e8e37ce9a5…	"Biology"	78	"Spring 2021"	ObjectId(
10	ObjectId('6826e8e37ce9a5…	"Chemistry"	82	"Fall 2021"	ObjectId(
11	ObjectId('6826e8e37ce9a5…	"Chemistry"	88	"Fall 2021"	ObjectId(
12	ObjectId('6826e8e37ce9a5…	"Physics"	79	"Spring 2022"	ObjectId(

03.Find the female students and only display their name, age and gender.

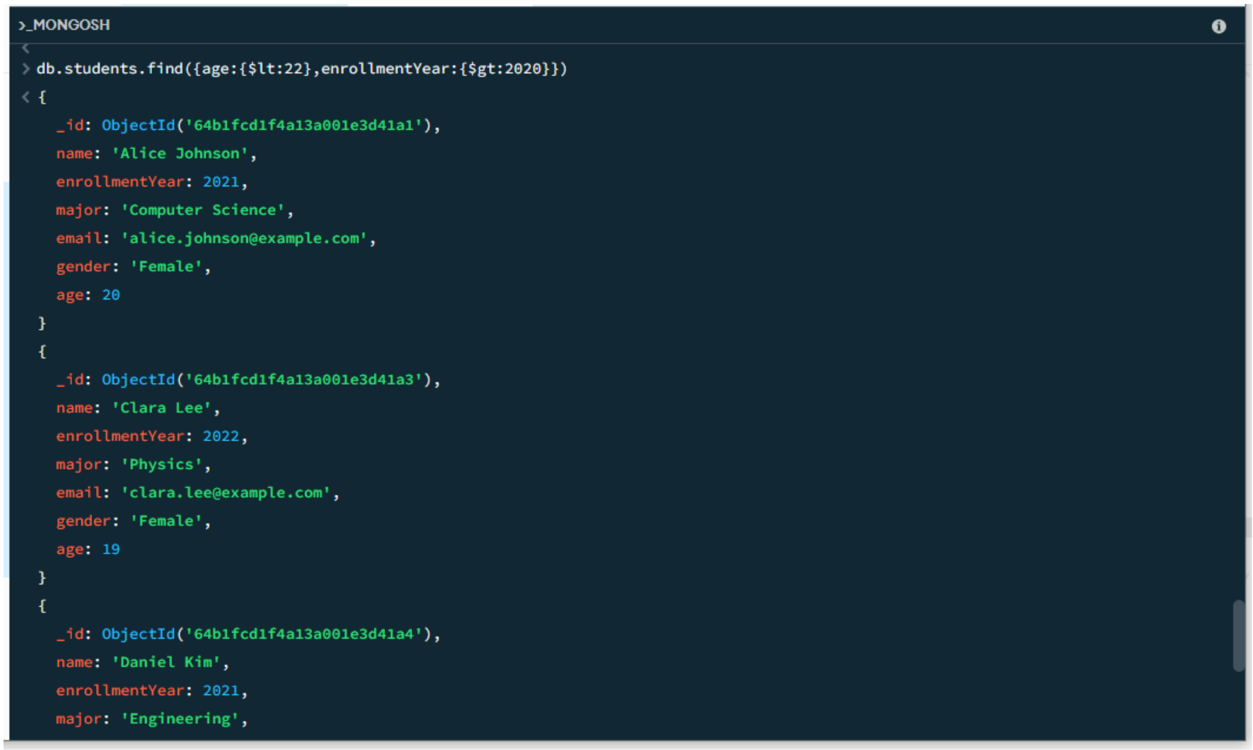
db.students.find({gender:"Female"},{name:1,age:1,gender:1,_id:0})



```
> db.students.find({gender:"Female"},{name:1,age:1,gender:1,_id:0})
< {
    name: 'Alice Johnson',
    gender: 'Female',
    age: 20
  }
  {
    name: 'Clara Lee',
    gender: 'Female',
    age: 19
  }
  {
    name: 'Eva Chen',
    gender: 'Female',
    age: 23
  }
  {
    name: 'Grace Liu',
    gender: 'Female',
    age: 20
  }
  {
    name: 'Ivy Zhang',
    gender: 'Female',
    age: 21
```

04. Find the students who are younger than 22 and enrolled after 2020

```
db.students.find({age:{$lt:22},enrollmentYear:{$gt:2020}})
```

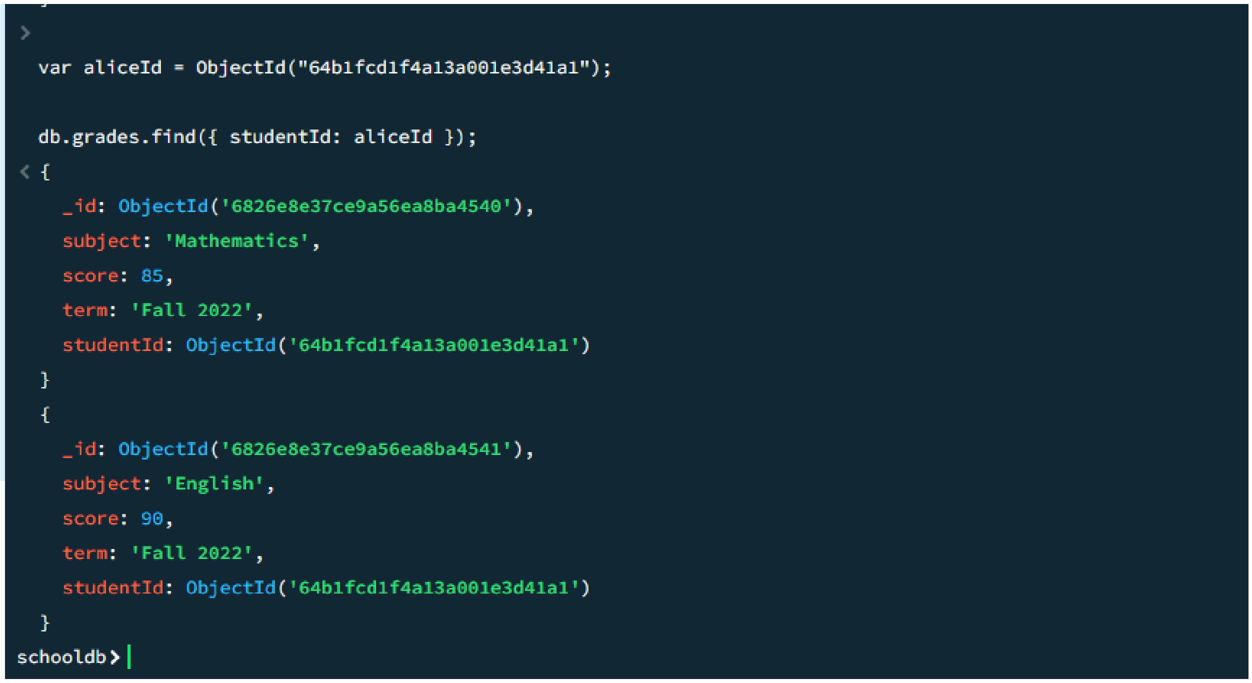


```
> db.students.find({age:{$lt:22},enrollmentYear:{$gt:2020}})
< {
    _id: ObjectId('64b1fcd1f4a13a001e3d41a1'),
    name: 'Alice Johnson',
    enrollmentYear: 2021,
    major: 'Computer Science',
    email: 'alice.johnson@example.com',
    gender: 'Female',
    age: 20
  }
  {
    _id: ObjectId('64b1fcd1f4a13a001e3d41a3'),
    name: 'Clara Lee',
    enrollmentYear: 2022,
    major: 'Physics',
    email: 'clara.lee@example.com',
    gender: 'Female',
    age: 19
  }
  {
    _id: ObjectId('64b1fcd1f4a13a001e3d41a4'),
    name: 'Daniel Kim',
    enrollmentYear: 2021,
    major: 'Engineering',
```

05. Find all grades for "Alice Johnson".

```
var aliceId = ObjectId("64b1fcd1f4a13a001e3d41a1");

db.grades.find({ studentId: aliceId });
```

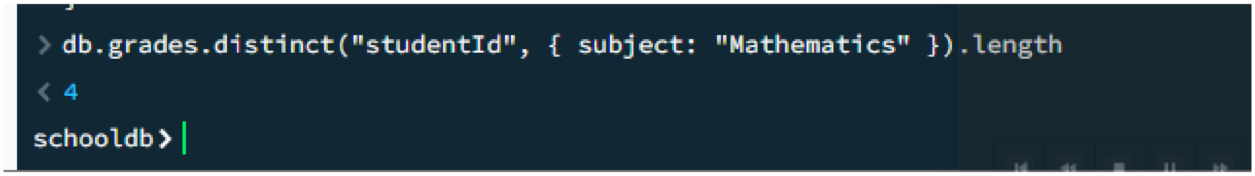


```
>
  var aliceId = ObjectId("64b1fcd1f4a13a001e3d41a1");

  db.grades.find({ studentId: aliceId });
< {
    _id: ObjectId('6826e8e37ce9a56ea8ba4540'),
    subject: 'Mathematics',
    score: 85,
    term: 'Fall 2022',
    studentId: ObjectId('64b1fcd1f4a13a001e3d41a1')
  }
  {
    _id: ObjectId('6826e8e37ce9a56ea8ba4541'),
    subject: 'English',
    score: 90,
    term: 'Fall 2022',
    studentId: ObjectId('64b1fcd1f4a13a001e3d41a1')
  }
schooldb>
```

06.Find how many students followed the subject “Mathematics”

```
db.grades.distinct("studentId", { subject: "Mathematics" }).length
```



```
> db.grades.distinct("studentId", { subject: "Mathematics" }).length
< 4
schooldb>
```

07. Find all students with grades in the term "Fall 2022".

```
const fallStudents = db.grades.distinct("studentId", { term: "Fall 2022" });
db.students.find({ _id: { $in: fallStudents } });
```