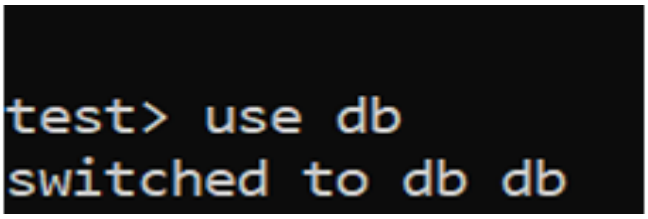
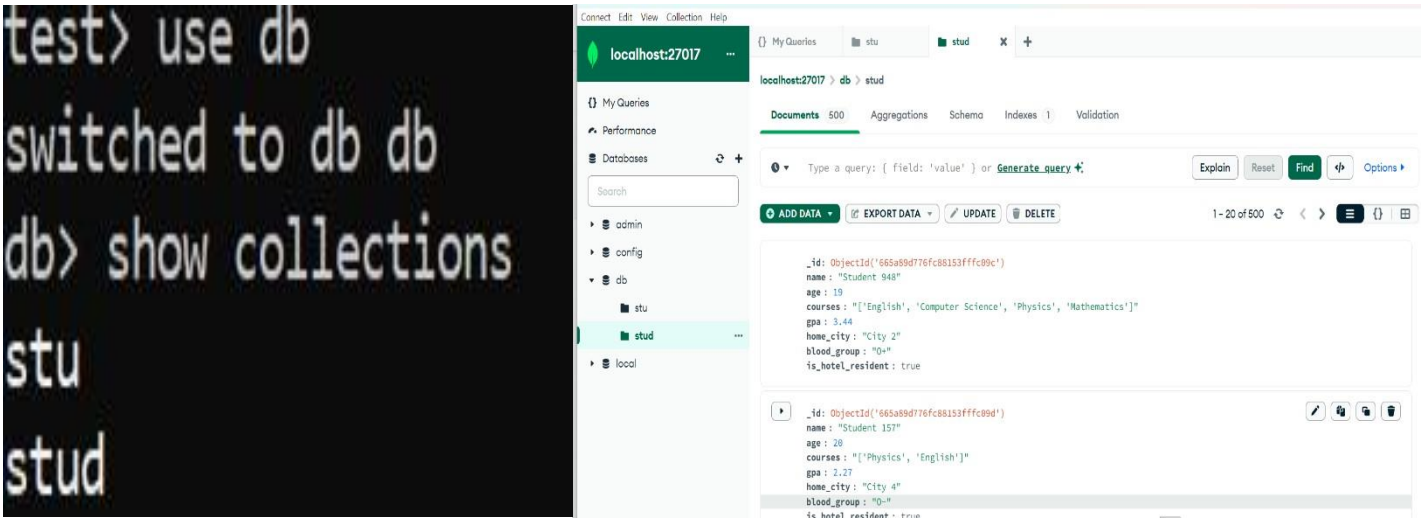
<u>Add, Update and Delete Data</u>:

Step 1: we need to give use db



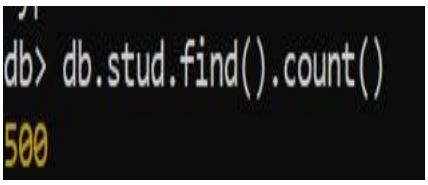
Now the database is switched to db

To find whether the data present in the given collection, here the collection name is about the information of students. we can use the command



In the above example the collection name is stud or stu.
To find the total number of collection of the database use the command.

"db.stud.find().count()"



To find the collection of the database use the command. "db.stud.find()"

Collections:

A collection is a group of documents. If a document is the MongoDB analog of a row in a relational database, then a collection can be thought of as the analog to a table.

Database:

MongoDB groups collections into databases. A single instance of MongoDB can host several databases, each grouping together zero or more collections

WHERE AND OR & CRUD:

WHERE:

Given a collection you want to filter a subset based on a condition. That is the place WHERE is used.

To find all students with GPA greater than 3.5, we use command- “db.stud.find({gpa:{$gt:3.5}});”

Here $gt represent the greater than and it gives the information that are belongs to greater than
3.5 gpa.

AND:

Given a collection you want to filter a subset based on multiple conditions.
To find all students who live in “City 5” AND have a based group of “A+” Here we use the command:

Db.stud.find({

$and: [

{home_city : “City 5”},

{blood_group: “A+”}
]

});

```
db> db.stud.find({
... $and:[
... {home_city:"City 5"},
... {blood_group:"A+"}
... ]
... });
[
  {
    _id: ObjectId('665a89d776fc88153fffc0d3'),
    name: 'Student 142',
    age: 24,
    courses: "['History', 'English', 'Physics', 'Computer Science']",
    gpa: 3.41,
    home_city: 'City 5',
    blood_group: 'A+',
    is_hotel_resident: false
  },
  {
    _id: ObjectId('665a89d776fc88153fffc1f3'),
    name: 'Student 947',
    age: 20,
    courses: "['Physics', 'History', 'English', 'Computer Science']",
db>
    home_city: 'City 5',
    blood_group: 'A+',
    is_hotel_resident: true
  },
  {
    _id: ObjectId('665a89d776fc88153fffc265'),
    name: 'Student 567',
    age: 22,
    courses: "['Computer Science', 'History', 'English', 'Mathematics']",
    gpa: 2.01,
    home_city: 'City 5',
    blood_group: 'A+',
    is_hotel_resident: true
  }
]
```

Above example is filtered based on some conditions like: ‘home_city: City5’ and ‘blood_group : A+’.

OR:

In the given collection that is student we want to filter a subset based on multiple conditions but any one is sufficient.

```
db.stud.find({ $or: [ { blood_group: "A+" }, { gpa: { $gt: 3.5 } }] })


_id: ObjectId('665a89d776fc88153fffc0a0'),
name: 'Student 930',
age: 25,
courses: "['English', 'Computer Science', 'Mathematics', 'History']",
gpa: 3.63,
home_city: 'City 3',
blood_group: 'A-',
is_hotel_resident: true
,
_id: ObjectId('665a89d776fc88153fffc0a2'),
name: 'Student 268',
age: 21,
courses: "['Mathematics', 'History', 'Physics']",
gpa: 3.98,
blood_group: 'A+',
is_hotel_resident: false
,
_id: ObjectId('665a89d776fc88153fffc0a7'),
name: 'Student 177',
age: 23,
courses: "['Mathematics', 'Computer Science', 'Physics']",
gpa: 2.52,
home_city: 'City 10',
blood_group: 'A+',
is_hotel_resident: true
,
_id: ObjectId('665a89d776fc88153fffc0ac'),
name: 'Student 368',
age: 20,
courses: "['English', 'History', 'Physics', 'Computer Science']",
gpa: 3.91,
```

In the above example , the stud database is filtered based on either ‘blood_group : A+’ or ‘gpa greater than 3.5’. ($gt: greater than).

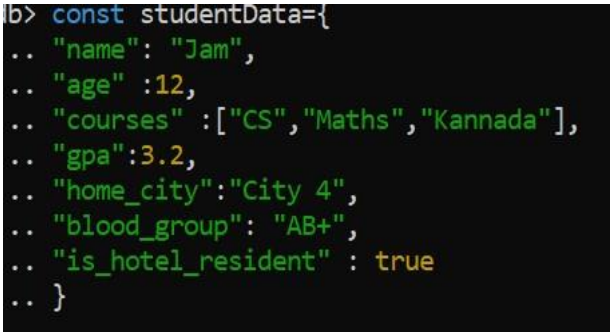
CURD:

C-Create/Insert
R-Remove
U-Update
D-Delete
This is applicable for a collection or a document.

Insert:

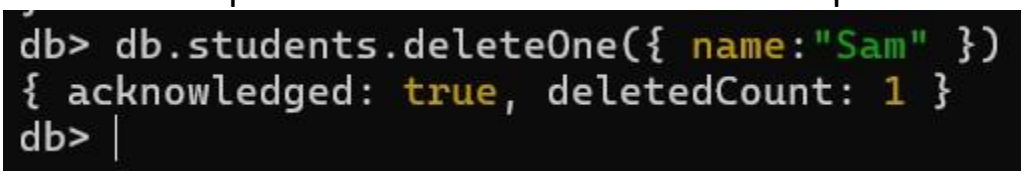
To insert the data into collection we use the following command:

Const studentData={
“name”: “Jam”,
“age”:12,,
“courses”:[“CS”, “MATHS”,
“KANNADA”],
“gpa”:3.2,
“home_city”: “City 4”,
“blood_group”: “AB+”,
“is_hotel_resident”:true
}



Update:
Here we can update any data that are present in the collections.
To update we use ‘$set’ command.

Delete:
The delete operation is used to delete the data present in the given collection.



Projection:

This is used when we don't need all columns or attributes.

```
db> db.students.deleteOne({ name:"Sam" })
{ acknowledged: true, deletedCount: 1 }
db> db.students.find({} , {name:1 , gpa:1 })
[
  {
    _id: ObjectId('66587b4a0a3749dfd07d78a0'),
    name: 'Student 948',
    gpa: 3.44
  },
  {
    _id: ObjectId('66587b4a0a3749dfd07d78a1'),
    name: 'Student 157',
    gpa: 2.27
  },
  {
    _id: ObjectId('66587b4a0a3749dfd07d78a2'),
    name: 'Student 316',
    gpa: 2.32
```

In the above example it shows only the name and gpa, because the command is given as 'name:1' and 'gpa:1'.

Benefits of Projection:

- Reduced data transferred between the database and your application.
- Simplifies your code by focusing on the specific information you need.

Improve query performance by retrieving only necessary data.

LIMIT AND SELECTORS:

Limit:

The limit operator is used with the find method.It's chained after the filter criteria or any sorting operations.

Syntax:

db.collection.find({filter},
{projection}).limit(number)

```
Type "it" for more
db> db.students.find({} , {_id:0}).limit(5)
[
  {
    name: 'Student 948',
    age: 19,
    courses: "['English', 'Computer Science', 'Physics', 'Mathematics']",
    gpa: 3.44,
    home_city: 'City 2',
    blood_group: 'O+',
    is_hotel_resident: true
  },
  {
    name: 'Student 157',
    age: 20,
    courses: "['Physics', 'English']",
    gpa: 2.27,
    home_city: 'City 4',
    blood_group: 'O-',
    is_hotel_resident: true
  },
  {
```

To get only first five document we use limit(5).

Selectors:

Comparison gt and lt
AND operator
OR operator.

Comparison gt lt:

To find all students with age greater than 20.

```
db> db.stud.find({age:{$gt:20}});
[
  {
    _id: ObjectId('665a89d776fc88153fffc09f'),
    name: 'Student 346',
    age: 25,
    courses: "['Mathematics', 'History', 'English']",
    gpa: 3.31,
    home_city: 'City 8',
    blood_group: 'O-',
    is_hotel_resident: true
  },
  {
    _id: ObjectId('665a89d776fc88153fffc0a0'),
    name: 'Student 930',
    age: 25,
    courses: "['English', 'Computer Science', 'Mathematics', 'History']",
    gpa: 3.63,
    home_city: 'City 3',
    blood_group: 'A-',
    is_hotel_resident: true
  },
  {
    _id: ObjectId('665a89d776fc88153fffc0a1'),
    name: 'Student 305',
    age: 24,
    courses: "['History', 'Physics', 'Computer Science', 'Mathematics']",
    gpa: 3.4,
    home_city: 'City 6',
    blood_group: 'O+',
    is_hotel_resident: true
```

AND operator:

To find students from “city 2” with blood group “B+”.

```
db.stud.find({
$and:[
{home_city: "City 2"},
{blood_group: "B+" }
]
});


_id: ObjectId('665a89d776fc88153fffc0b4'),
name: 'Student 504',
age: 21,
courses: "['Physics', 'Computer Science', 'English', 'Mathematics']",
gpa: 2.42,
home_city: 'City 2',
blood_group: 'B+',
is_hotel_resident: true
,

_id: ObjectId('665a89d776fc88153fffc0eb'),
name: 'Student 367',
age: 19,
courses: "['English', 'Physics', 'History', 'Mathematics']",
gpa: 2.81,
home_city: 'City 2',
blood_group: 'B+',
is_hotel_resident: false
,
```