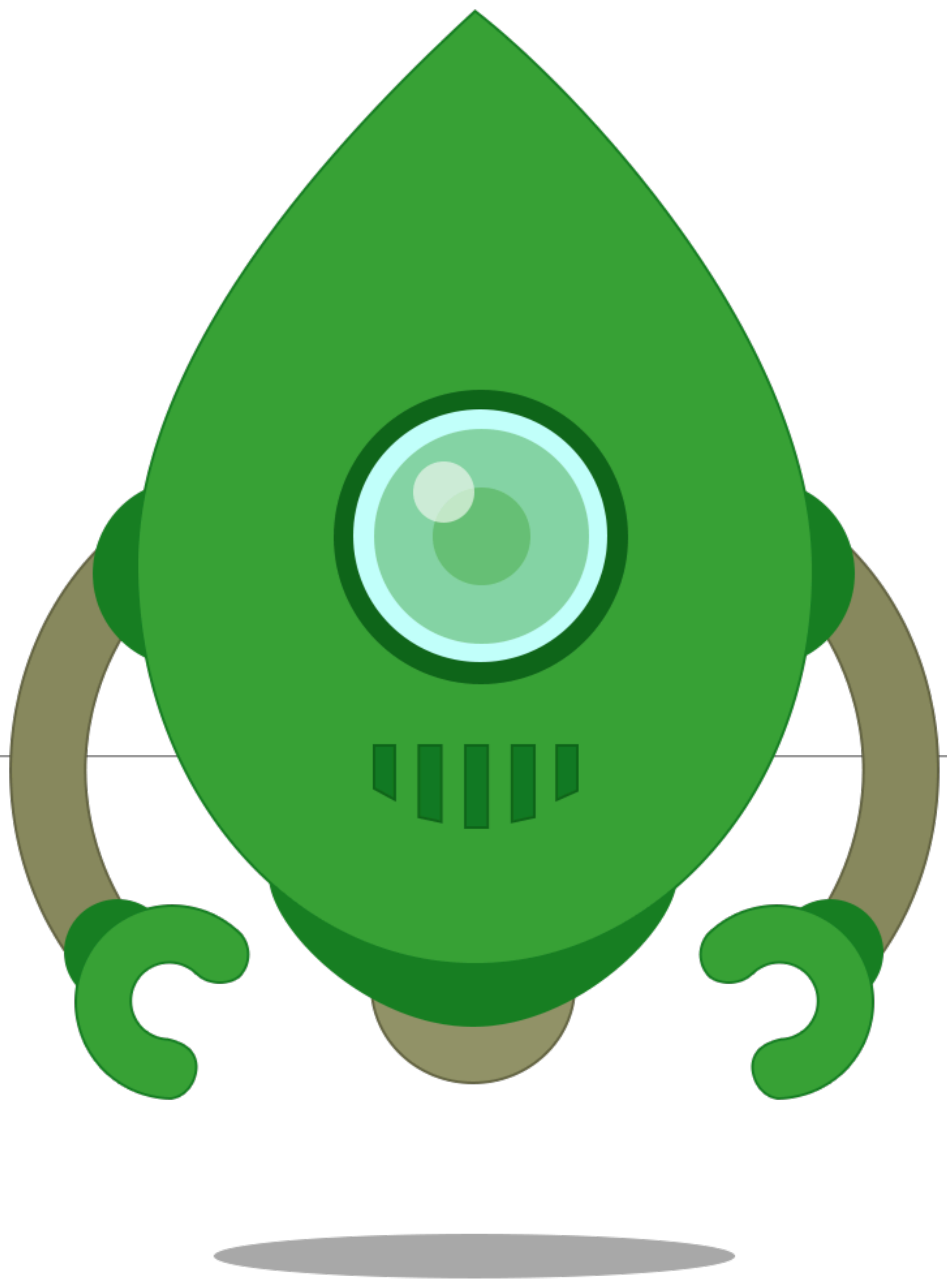
Accessing Mongo



Connecting to Mongo (via Mongoose)

index.js

```
...
require('./app/models/db');
...
```

db.js

import mongoose

use the 'promise' library from node

declare the connection string

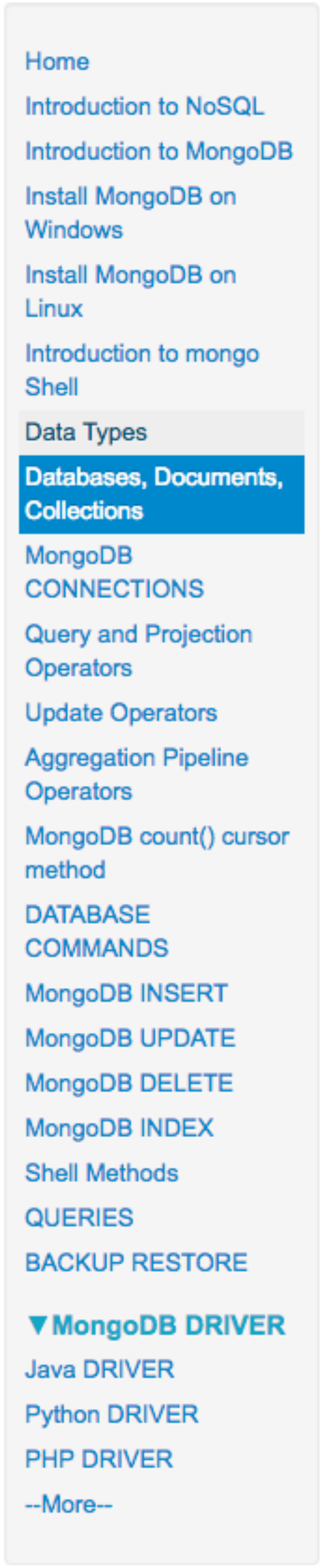
connect to the database

Log success/fail/disconnect

```
'use strict';

const mongoose = require('mongoose');
mongoose.Promise = global.Promise;

let dbURI = 'mongodb://localhost/donation';
if (process.env.NODE_ENV === 'production') {
  dbURI = process.env.MONGOLAB_URI;
}

mongoose.connect(dbURI);

mongoose.connection.on('connected', function () {
  console.log('Mongoose connected to ' + dbURI);
});

mongoose.connection.on('error', function (err) {
  console.log('Mongoose connection error: ' + err);
});

mongoose.connection.on('disconnected', function () {
  console.log('Mongoose disconnected');
});
```

Mongo Core Concepts

- Database
- Documents
- Collections



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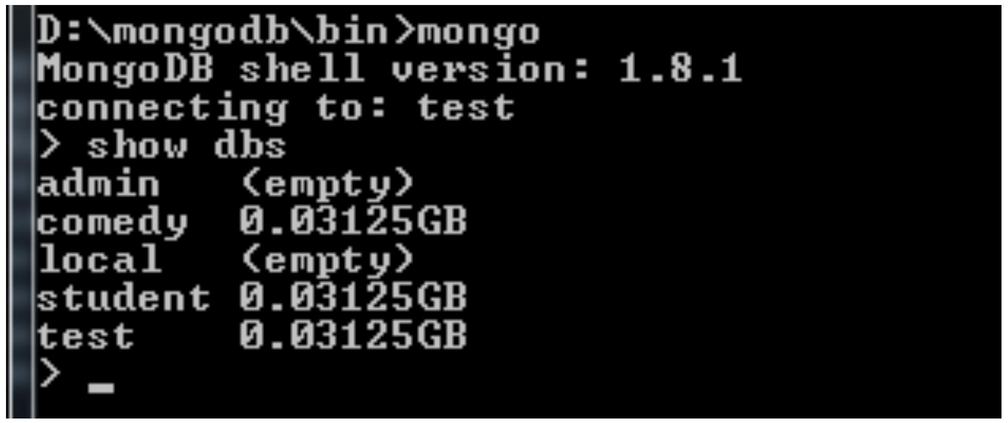
w3resource

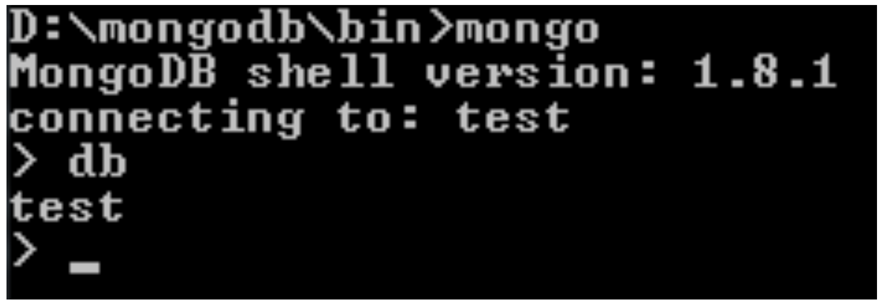
Databases

- A number of databases can be run on a single MongoDB server.
- Default database of MongoDB is 'db', which is stored within data folder.
- MongoDB can create databases on the fly. It is not required to create a database before you start working with it.



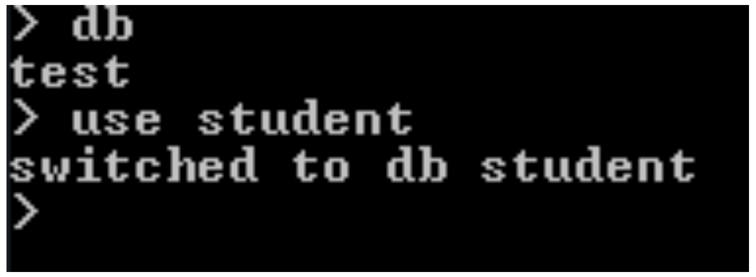
```
D:\mongodb\bin>mongo
MongoDB shell version: 1.8.1
connecting to: test
> show dbs
admin   (empty)
comedy  0.03125GB
local   (empty)
student 0.03125GB
test    0.03125GB
> _
```

"show dbs" command provides you with a list of all the databases.



```
D:\mongodb\bin>mongo
MongoDB shell version: 1.8.1
connecting to: test
> db
test
> _
```

Run 'db' command to refer to the curren database object or connection.



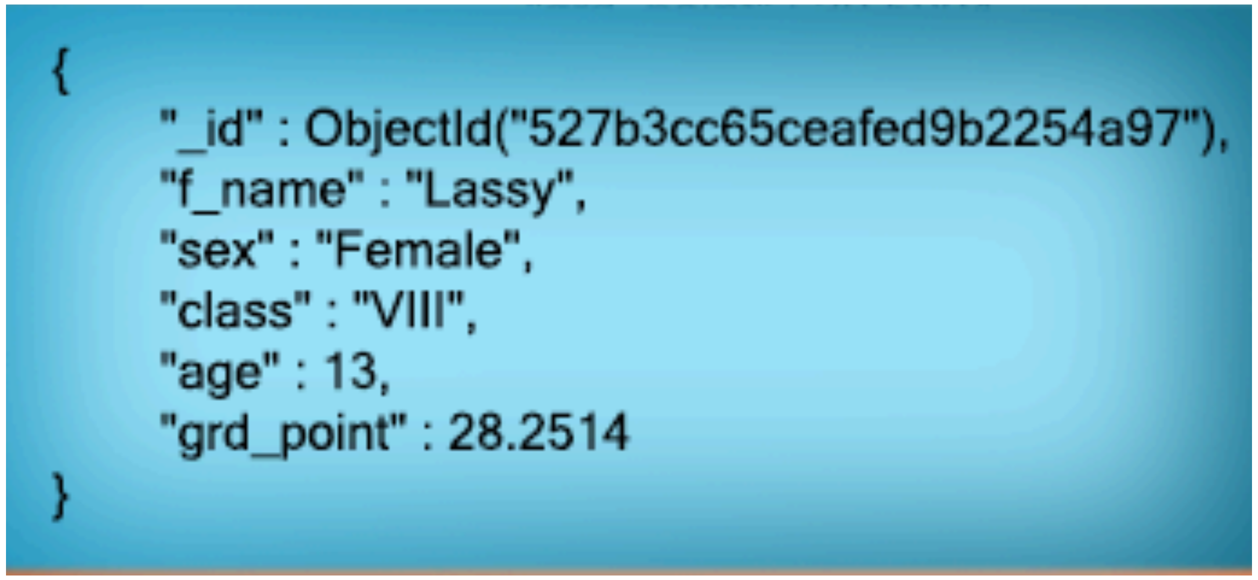
```
> db
test
> use student
switched to db student
>
```

To connect to a particular database, run use command

Documents

- Document is the unit of storing data in a MongoDB database.
- Document use JSON (JavaScript Object Notation, is a lightweight, thoroughly explorable format used to interchange data between various applications) style for storing data.
- Often, the term "object" is used to refer a document.
- Documents are analogous to the records of a RDBMS. Insert, update and delete operations can be performed on a collection.

Example Document



```
{
        "_id" : ObjectId("527b3cc65ceafed9b2254a97"),
        "f_name" : "Lassy",
        "sex" : "Female",
        "class" : "VIII",
        "age" : 13,
        "grd_point" : 28.2514
}
```

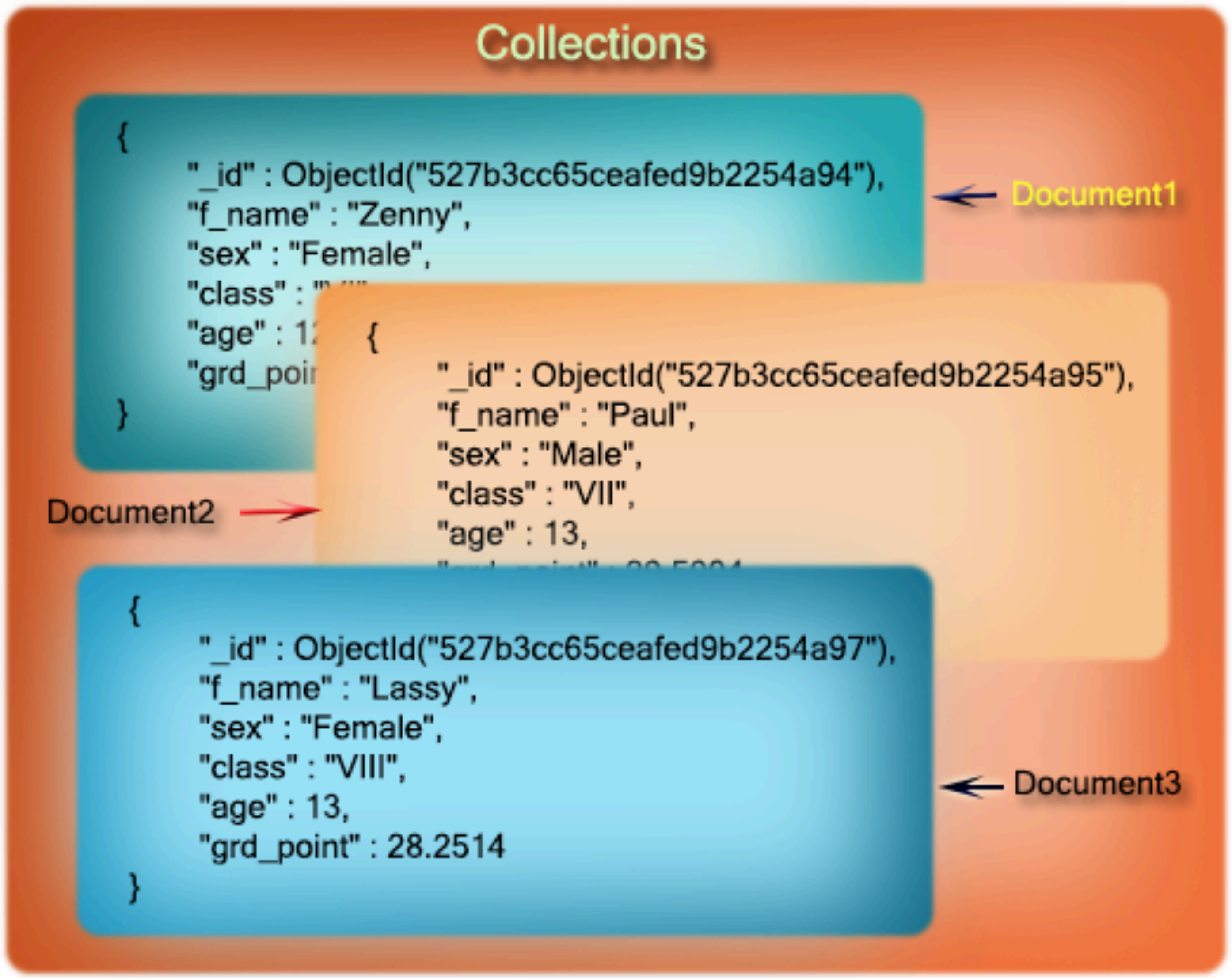
Documents vs Tables

Relational DB	MongoDB
Table	Collection
Column	Key
Value	Value
Records / Rows	Document / Object

Data Types	Description
string	May be an empty string or a combination of characters.
integer	Digits.
boolean	Logical values True or False.
double	A type of floating point number.
null	Not zero, not empty.
array	A list of values.
object	An entity which can be used in programming. May be a value, variable, function, or data structure.
timestamp	A 64 bit value referring to a time and unique on a single "mongod" instance.
Object IDs	Every MongoDB object or document must have an Object ID which is unique. This is a BSON(Binary JavaScript Object Notation, which is the binary interpretation of JSON) object id, a 12-byte binary value which has a very rare chance of getting duplicated.

Collections

- A collection may store number of documents.
- A collection is analogous to a table of a RDBMS.
- A collection may store documents that are not same in structure.
- This is possible because MongoDB is a Schema-free database.
- In a relational database like MySQL, a schema defines the organization / structure of data in database.
- MongoDB does not require such a set of formula defining structure of data.



```
{
    "_id" : ObjectId("527b3cc65ceafed9b2254a94"),
    "f_name" : "Zenny",
    "sex" : "Female",
    "class" :
    "age" : 1
    "grd_poi
}
```

```
{
    "_id" : ObjectId("527b3cc65ceafed9b2254a95"),
    "f_name" : "Paul",
    "sex" : "Male",
    "class" : "VII",
    "age" : 13,
```

```
{
    "_id" : ObjectId("527b3cc65ceafed9b2254a97"),
    "f_name" : "Lassy",
    "sex" : "Female",
    "class" : "VIII",
    "age" : 13,
    "grd_point" : 28.2514
}
```

Mongoose Schema

- Everything in Mongoose starts with a Schema.
- Each schema maps to a MongoDB collection and defines the shape of the documents within that collection.

```
const mongoose = require('mongoose');

const userSchema = mongoose.Schema({
  firstName: String,
  lastName: String,
  email: String,
  password: String,
});
```

```
                         String
                         Number
                         Date
mongoose.Schema.Types.   Buffer
                         Boolean
                         Mixed
                         ObjectId
                         Array
```

Mongoose Models

- Models are constructors compiled from Schema definitions.
- Instances of these models represent documents which can be saved and retrieved from our database.
- All document creation and retrieval from the database is handled by these models.

users.js

```
'use strict';

const mongoose = require('mongoose');

const userSchema = mongoose.Schema({
  firstName: String,
  lastName: String,
  email: String,
  password: String,
});

const User = mongoose.model('User', userSchema);

module.exports = User;
```

- User object can be used in other modules to interact with the "User" collection

Creating and saving Documents / Objects

import the Model

```
const User = require('../models/user');
```

```
...
```

Create a Document

```
const user = new User({
  firstName: 'Homer',
  lastName: 'Simpson',
  email: 'homer@simpson.com',
  password: 'secret',
});
```

Save the Document (Promises)

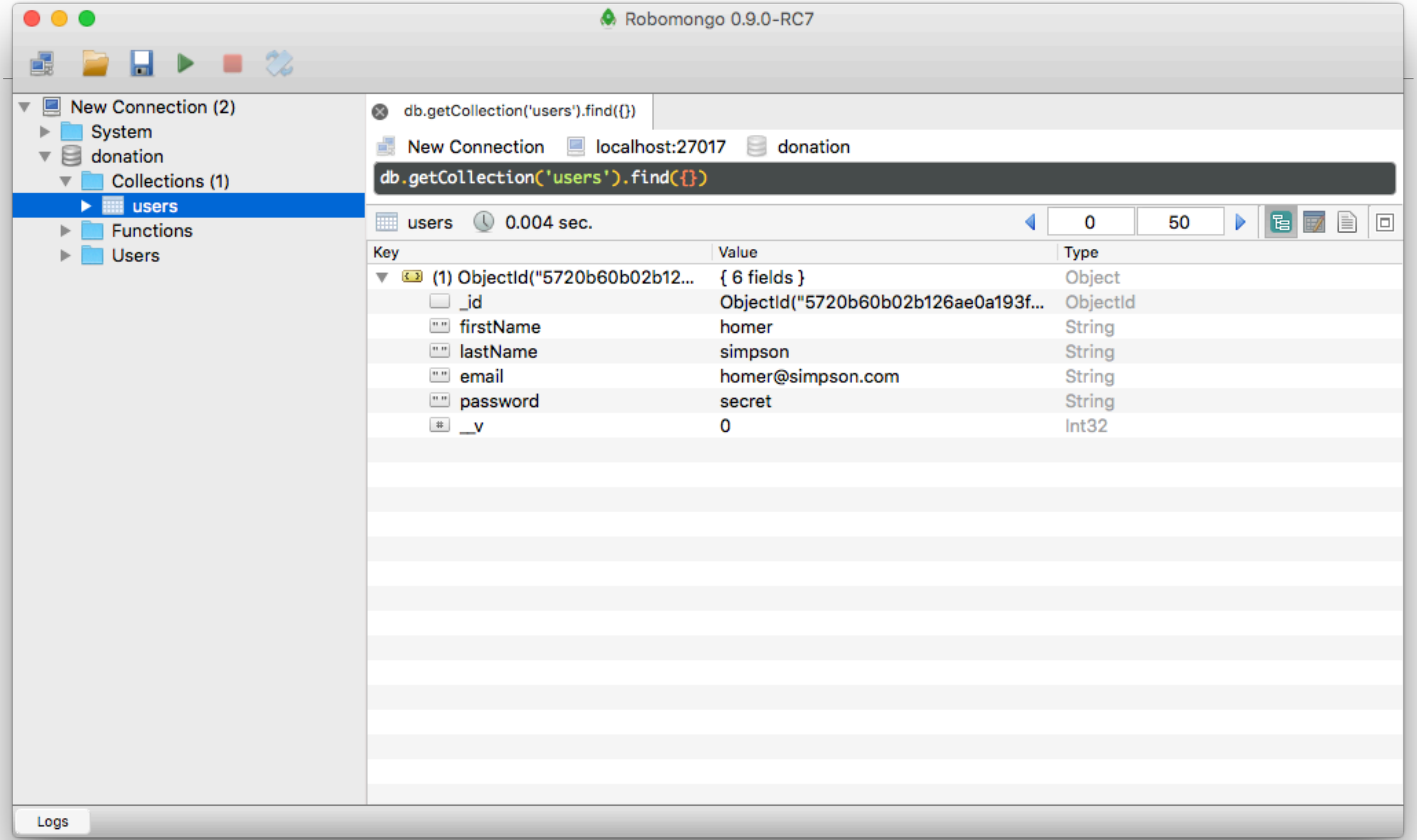
success

error

```
user.save().then(newUser => {
  // user saved successfully
  // newUser is the saved object

}).catch(err => {
  // an Error has occurred

});
```



db.getCollection('users').find({})

New Connection localhost:27017 donation

```
db.getCollection('users').find({})
```

users 0.004 sec. 0 50

Key	Value	Type
(1) ObjectId("5720b60b02b12...	{ 6 fields }	Object
_id	ObjectId("5720b60b02b126ae0a193f...	ObjectId
firstName	homer	String
lastName	simpson	String
email	homer@simpson.com	String
password	secret	String
__v	0	Int32

Find a Document (Object)

One attribute we as searching on

DB Query

Query succeeded check if match found

error accessing DB

```
const userEmail = 'homer@simpson.com';



User.findOne({ email: userEmail }).then(foundUser => {
  // Query success, check foundUser to see if match


   if (foundUser) {
     // we found a match - complete document in foundUser

   } else {
     // no match found

   }


 }).catch(err => {
   // some Error

});
```

Update a Document (Object)

One attribute

Revised contents

DB Query

Query succeeded, replace the fields

Save the new version

New version saved

error accessing DB

```
const userEmail = 'homer@simpson.com';

const editedUser = //…new fields for user

User.findOne({ email: userEmail }).then(user => {
  // found the user, replace the fields in the document

  user.firstName = editedUser.firstName;
  user.lastName = editedUser.lastName;
  user.email = editedUser.email;
  user.password = editedUser.password;

  return user.save();

}).then(user => {
  // new version of the user saved

}).catch(err => {
  // Some error occurred

});
```

HAPI Handlers

- Create
- Read
- Update

Creating a Document in Handler

- Register HAPI Event Handler

```
exports.register = {
  auth: false,
  handler: function (request, reply) {
    const user = new User(request.payload);
    user.save().then(newUser => {
      reply.redirect('/login');
    }).catch(err => {
      reply.redirect('/');
    });
  },

};
```

Search for a Document in Handler

- authenticate HAPI event handler

```
exports.authenticate = {
  auth: false,
  handler: function (request, reply) {
    const user = request.payload;
    User.findOne({ email: user.email }).then(foundUser => {
      if (foundUser && foundUser.password === user.password) {
        request.cookieAuth.set({
          loggedIn: true,
          loggedInUser: user.email,
        });
        reply.redirect('/home');
      } else {
        reply.redirect('/signup');
      }
    }).catch(err => {
      reply.redirect('/');
    });
  },

};
```

Update a Document in Handler

- updateSettings HAPI event handler

```
exports.updateSettings = {

  handler: function (request, reply) {
    const editedUser = request.payload;
    const loggedInUserEmail = request.auth.credentials.loggedInUser;

    User.findOne({ email: loggedInUserEmail }).then(user => {
      user.firstName = editedUser.firstName;
      user.lastName = editedUser.lastName;
      user.email = editedUser.email;
      user.password = editedUser.password;
      return user.save();
    }).then(user => {
      reply.view('settings', { title: 'Edit Account Settings', user: user });
    }).catch(err => {
      reply.redirect('/');
    });
  },

};
```