To-Do List Web Application

A simple web app built with Express.js and MongoDB, allowing users to create and manage to-do lists. Uses EJS for dynamic rendering and CSS for responsive design.

Prerequisites

- Node.js & npm installed
- MongoDB running locally

Installation

1. Clone/download the repository.
2. Navigate to the project directory and install dependencies:

   ```
   npm install
   ```

3. Ensure MongoDB is running on port 27017.
4. Start the application:

   ```
   node app.js
   ```

5. Access at http://localhost:3000.

Features

- Manage multiple to-do lists
- Add new tasks
- Delete tasks
- Responsive design

File Structure

- `app.js` – Server, routes, and DB connection
- `date.js` – Date utilities
- `list.ejs` – To-do list template
- `views/` – EJS templates
- `public/` – CSS & static files

Technologies Used

- Node.js (Runtime)
- Express.js (Web framework)
- EJS (Templating engine)
- MongoDB & Mongoose (Database & ORM)
- HTML/CSS (Frontend)

Functionality Breakdown

1. Mongoose Models & Schemas

- `Item` model – Represents a to-do item
- `List` model – Custom to-do lists
- `defaultItems` – Default items for new lists

2. Routes & Operations

- **`GET /`** – Displays to-do list
- **`GET /:customListName`** – Handles custom lists
- **`POST /`** – Adds a new item
- **`POST /delete`** – Deletes an item
- **`GET /about`** – Renders "About" page

3. Mongoose Functions

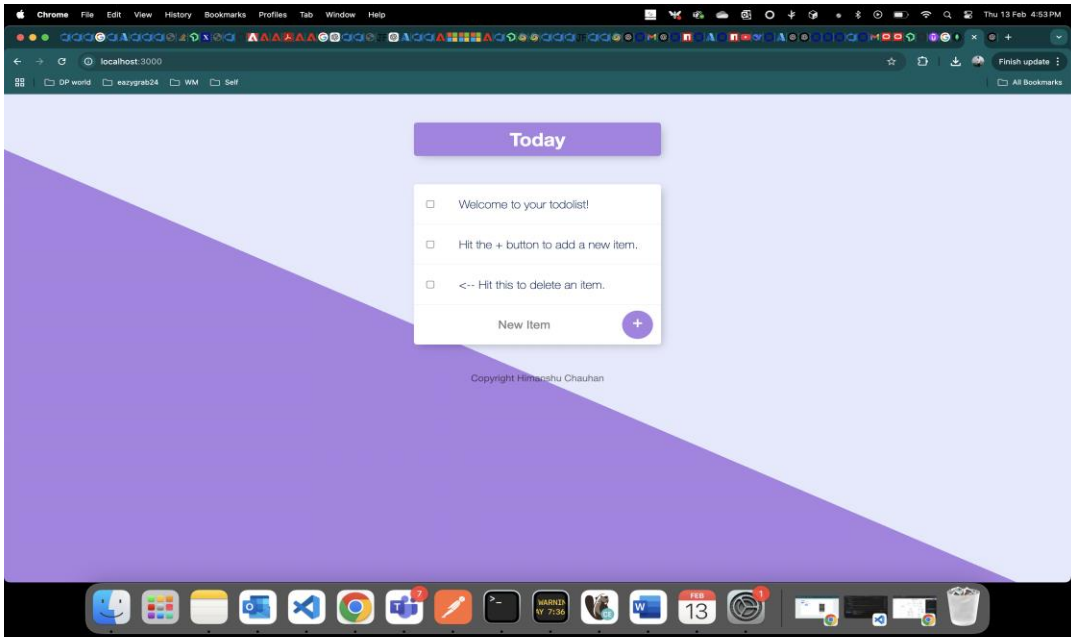
- CRUD operations: `find()`, `insertMany()`, `findOne()`, `save()`, `findOneAndUpdate()`, `findByIdAndRemove()`
- Schema-based validation and middleware

Future Enhancements

- User authentication for personal to-do lists.
- Integration with React.js or Vue.js for better UI.
- Cloud deployment for global access.
- Task scheduling and notifications.
- Implementing GraphQL for efficient data retrieval.
- Exploring serverless architecture for scalability.
- Mobile-friendly design.

Demonstration

Default page :-



Today

□ Welcome to your todolist!

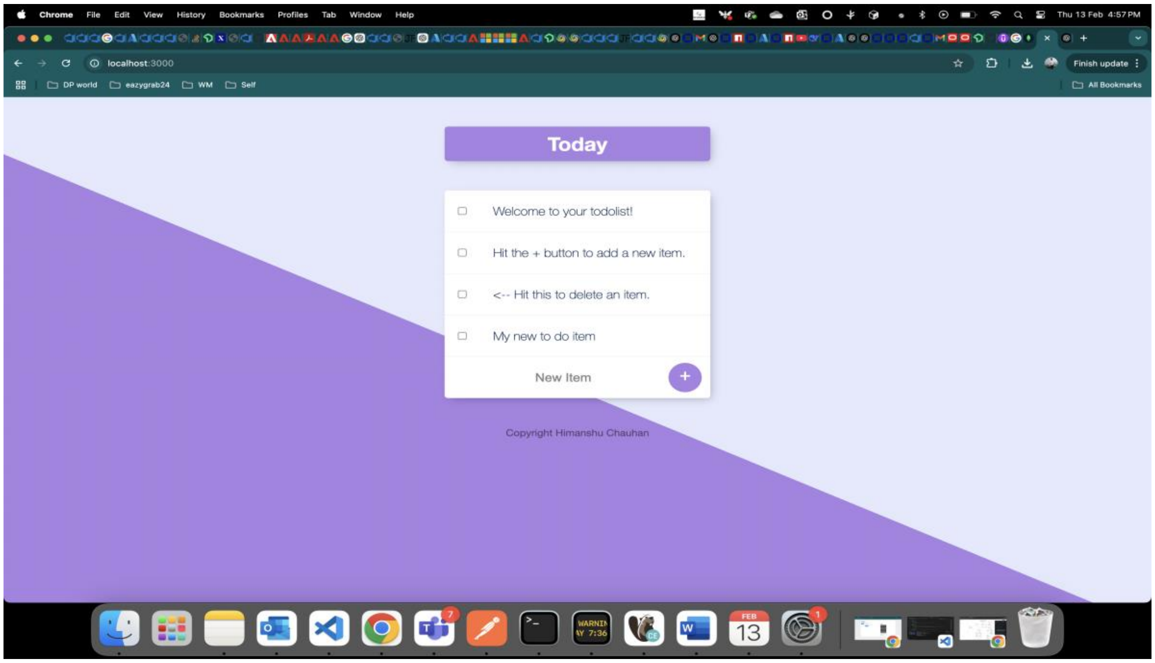
□ Hit the + button to add a new item.

□ <-- Hit this to delete an item.

New Item +

Copyright Himanshu Chauhan

Added first item :-



Today

□ Welcome to your todolist!

□ Hit the + button to add a new item.

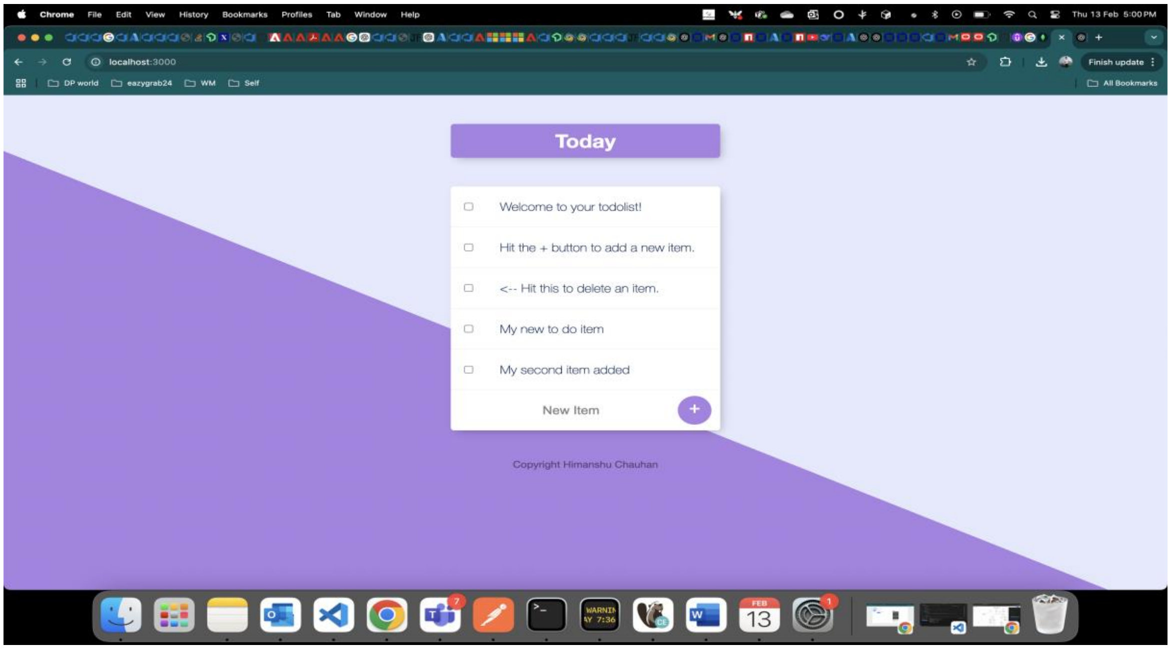
□ <-- Hit this to delete an item.

□ My new to do item

New Item +

Copyright Himanshu Chauhan

Added Second item :-



Today

□ Welcome to your todolist!

□ Hit the + button to add a new item.

□ <-- Hit this to delete an item.

□ My new to do item

□ My second item added

New Item +

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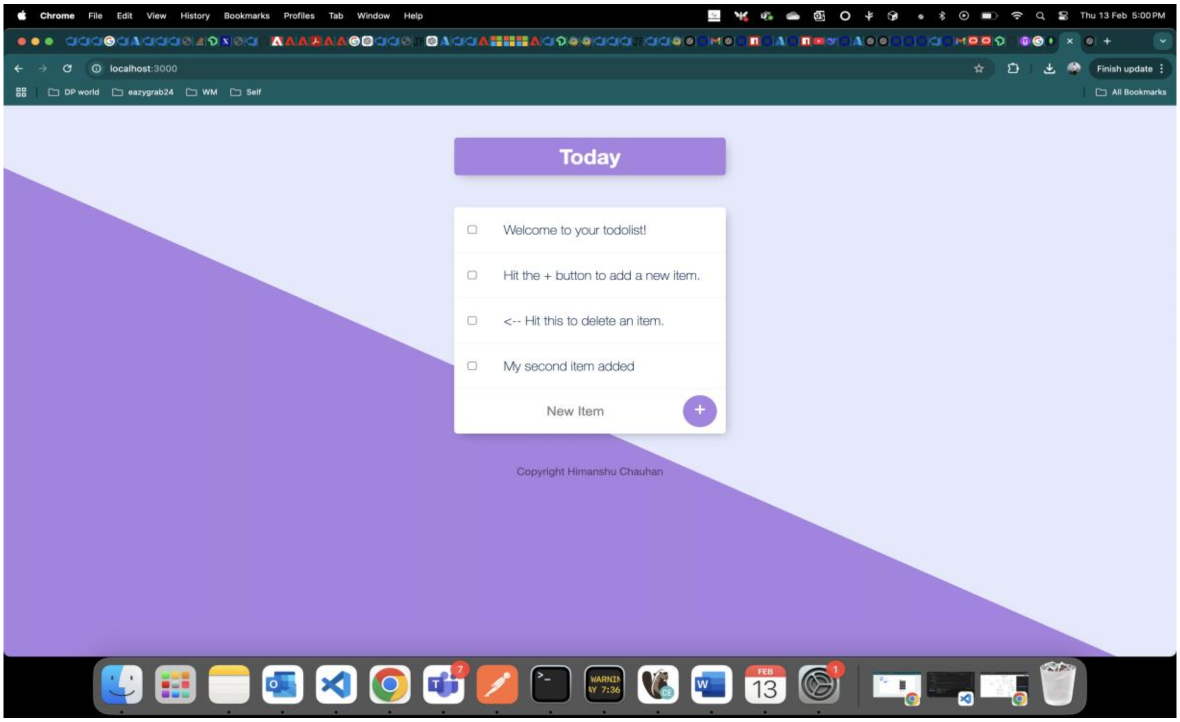
Removing first item from the list :-



Today

□ Welcome to your todolist!

□ Hit the + button to add a new item.

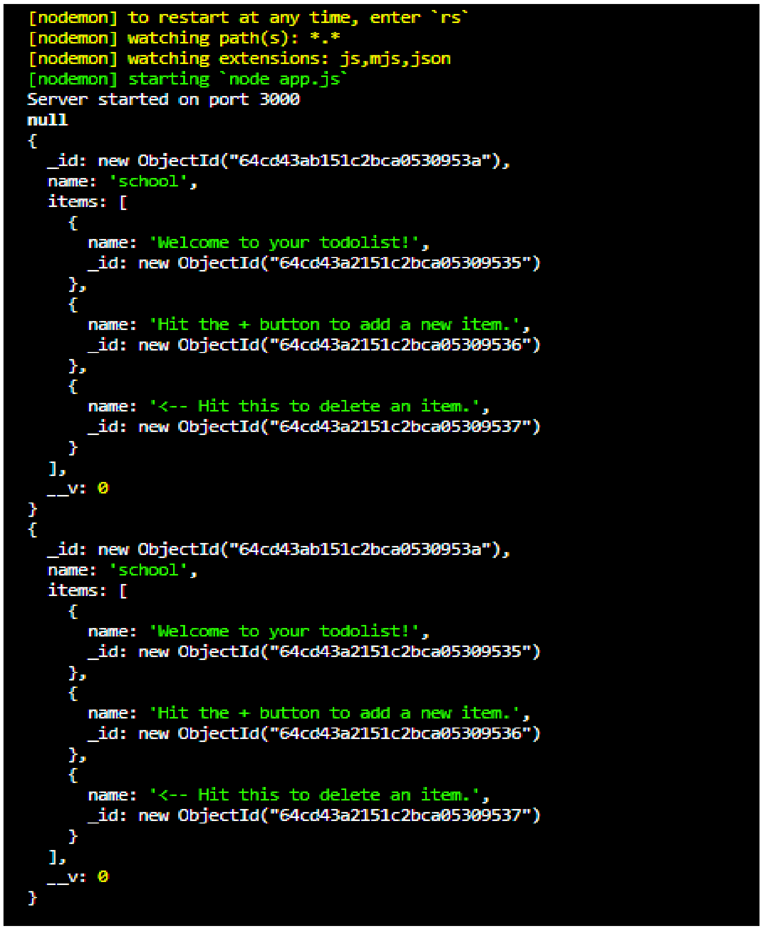
□ <-- Hit this to delete an item.

□ My second item added

New Item +

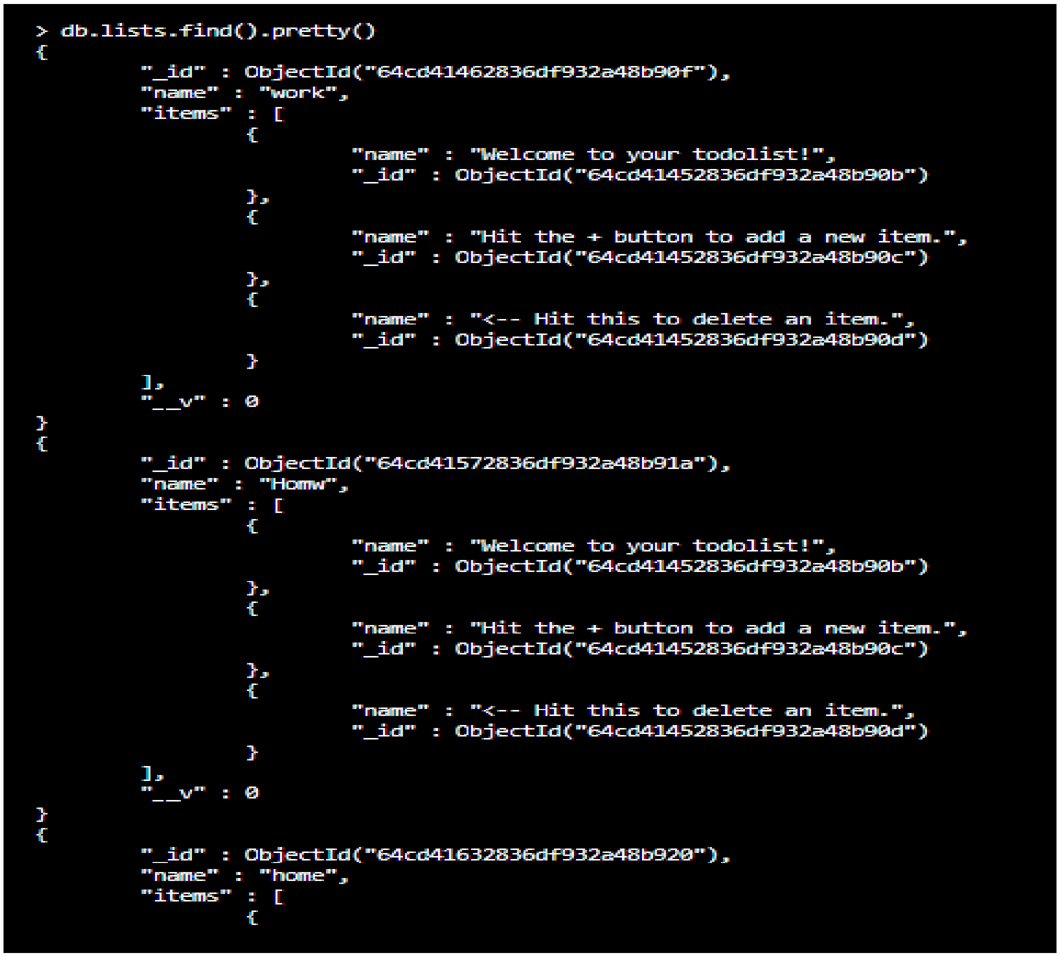
Copyright Himanshu Chauhan

View of Node.js Server Running



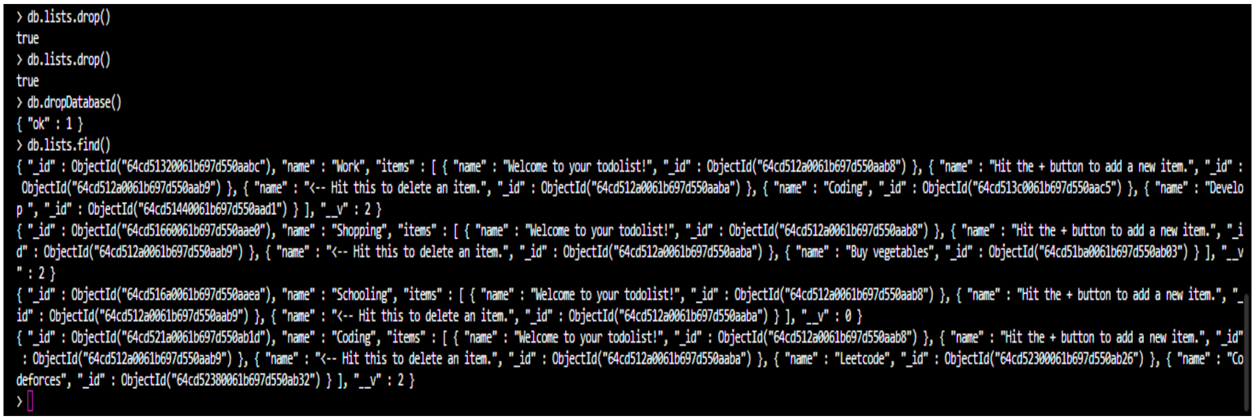
```
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,json
[nodemon] starting `node app.js`
Server started on port 3000
null
{
  _id: new ObjectId("64cd43ab151c2bca0530953a"),
  name: 'school',
  items: [
    {
      name: 'Welcome to your todolist!',
      _id: new ObjectId("64cd43a2151c2bca05309535")
    },
    {
      name: 'Hit the + button to add a new item.',
      _id: new ObjectId("64cd43a2151c2bca05309536")
    },
    {
      name: '<-- Hit this to delete an item.',
      _id: new ObjectId("64cd43a2151c2bca05309537")
    }
  ],
  __v: 0
}
{
  _id: new ObjectId("64cd43ab151c2bca0530953a"),
  name: 'school',
  items: [
    {
      name: 'Welcome to your todolist!',
      _id: new ObjectId("64cd43a2151c2bca05309535")
    },
    {
      name: 'Hit the + button to add a new item.',
      _id: new ObjectId("64cd43a2151c2bca05309536")
    },
    {
      name: '<-- Hit this to delete an item.',
      _id: new ObjectId("64cd43a2151c2bca05309537")
    }
  ],
  __v: 0
}
```

MongoDB database View during CRUD operation



```
> db.lists.find().pretty()
{
        "_id" : ObjectId("64cd41462836df932a48b90f"),
        "name" : "work",
        "items" : [
                {
                        "name" : "Welcome to your todolist!",
                        "_id" : ObjectId("64cd41452836df932a48b90b")
                },
                {
                        "name" : "Hit the + button to add a new item.",
                        "_id" : ObjectId("64cd41452836df932a48b90c")
                },
                {
                        "name" : "<-- Hit this to delete an item.",
                        "_id" : ObjectId("64cd41452836df932a48b90d")
                }
        ],
        "__v" : 0
}
{
        "_id" : ObjectId("64cd41572836df932a48b91a"),
        "name" : "Homw",
        "items" : [
                {
                        "name" : "Welcome to your todolist!",
                        "_id" : ObjectId("64cd41452836df932a48b90b")
                },
                {
                        "name" : "Hit the + button to add a new item.",
                        "_id" : ObjectId("64cd41452836df932a48b90c")
                },
                {
                        "name" : "<-- Hit this to delete an item.",
                        "_id" : ObjectId("64cd41452836df932a48b90d")
                }
        ],
        "__v" : 0
}
{
        "_id" : ObjectId("64cd41632836df932a48b920"),
        "name" : "home",
        "items" : [
                {
```

Compact view of MongoDB



```
> db.lists.drop()
true
> db.lists.drop()
true
> db.dropDatabase()
{ "ok" : 1 }
> db.lists.find()
{ "_id" : ObjectId("64cd51320061b697d550aabc"), "name" : "Work", "items" : [ { "name" : "Welcome to your todolist!", "_id" : ObjectId("64cd512a0061b697d550aab8") }, { "name" : "Hit the + button to add a new item.", "_id" :
 ObjectId("64cd512a0061b697d550aab9") }, { "name" : "<-- Hit this to delete an item.", "_id" : ObjectId("64cd512a0061b697d550aaba") }, { "name" : "Coding", "_id" : ObjectId("64cd513c0061b697d550aac5") }, { "name" : "Develo
p ", "_id" : ObjectId("64cd51440061b697d550aad1") } ], "__v" : 2 }
{ "_id" : ObjectId("64cd51660061b697d550aae0"), "name" : "Shopping", "items" : [ { "name" : "Welcome to your todolist!", "_id" : ObjectId("64cd512a0061b697d550aab8") }, { "name" : "Hit the + button to add a new item.", "_i
d" : ObjectId("64cd512a0061b697d550aab9") }, { "name" : "<-- Hit this to delete an item.", "_id" : ObjectId("64cd512a0061b697d550aaba") }, { "name" : "Buy vegetables", "_id" : ObjectId("64cd51ba0061b697d550ab03") } ], "__v
" : 2 }
{ "_id" : ObjectId("64cd516a0061b697d550aaea"), "name" : "Schooling", "items" : [ { "name" : "Welcome to your todolist!", "_id" : ObjectId("64cd512a0061b697d550aab8") }, { "name" : "Hit the + button to add a new item.", "_
id" : ObjectId("64cd512a0061b697d550aab9") }, { "name" : "<-- Hit this to delete an item.", "_id" : ObjectId("64cd512a0061b697d550aaba") } ], "__v" : 0 }
{ "_id" : ObjectId("64cd521a0061b697d550ab1d"), "name" : "Coding", "items" : [ { "name" : "Welcome to your todolist!", "_id" : ObjectId("64cd512a0061b697d550aab8") }, { "name" : "Hit the + button to add a new item.", "_id"
 : ObjectId("64cd512a0061b697d550aab9") }, { "name" : "<-- Hit this to delete an item.", "_id" : ObjectId("64cd512a0061b697d550aaba") }, { "name" : "Leetcode", "_id" : ObjectId("64cd52300061b697d550ab26") }, { "name" : "Co
deforces", "_id" : ObjectId("64cd52380061b697d550ab32") } ], "__v" : 2 }
>
```