Bước 1:

```
const config = {
    app: {
        port: process.env.PORT || 3000,
    },
    db: {
        uri: process.env.MONGODB_URI || "mongodb://127.0.0.1:27017/contactbook"
    }
};

module.exports = config;
```

Định nghĩa lớp trợ giúp kết nối đến Mongo DB:

```
utils > JS mongodb.util.js > ...
const { MongoClient } = require("mongodb");

class MongoDB {
    static connect = async (uri) => {
        if (this.client) return this.client;
        this.client = await MongoClient.connect(uri);
        return this.client;
    }
}

module.exports = MongoDB;
```

server.js

```
const app = require("./app");
const config = require("./app/config");
const MongoDB = require("./app/utils/mongodb.util");

async function startServer() {
    try {
        await MongoDB.connect(config.db.uri);
        console.log("Connected to the databases!");

        const PORT = config.app.port;
        app.listen(PORT, () => {
            console.log(`Server is running on port ${PORT}`);
        });
    }catch (error){
        console.log("Cannot connect to the databases!", error);
        process.exit();
    }
}

startServer();
```

contact.service.js

```
const { ObjectID, ReturnDocument, ObjectId } = require("mongodb");

class ContactService {
  constructor(client) {
    this.Contact = client.db().collection("contacts");
  }
  // Dinh nghia cac phuong thuc truy xuat CSDL su dung mongodb API
  extractConacData(payload) {
    const contact = {
      name: payload.name,
      email: payload.email,
      address: payload.address,
      phone: payload.phone,
      favorite: payload.favorite,
    };
    //Remove underfined fields
    Object.keys(contact).forEach(
      (key) => contact[key] === undefined && delete contact[key]
    );
    return contact;
  }
  async create(payload) {
    const contact = this.extractConacData(payload);
    const result = await this.Contact.findOneAndUpdate(
      contact,
      { $set: { favorite: contact.favorite === true } },
      { ReturnDocument: "after", upsert: true }
    );
    return result;
  }

  async find(filter) {
    const cursor = await this.Contact.find(filter);
    return await cursor.toArray();
  }

  async findByName(name) {
    return await this.find({
      name: { $regex: new RegExp(new RegExp(name)), $options: "i" },
    });
  }

  async findById(id) {
    return await this.Contact.findOne({
      _id: ObjectId.isValid(id) ? new ObjectId(id) : null,
    });
  }
```

```
  async update(id, payload) {
    const filter = {
      _id: ObjectId.isValid(id) ? new ObjectId(id) : null,
    };
    const update = this.extractConacData(payload);
    const result = await this.Contact.findOneAndUpdate(
      filter,
      { $set: update },
      { returnOriginal: "after" } // Use this for MongoDB versions < v4.2
    );
    return result;
  }

  async delete(id) {
    const result = await this.Contact.findOneAndDelete({
      _id: ObjectId.isValid(id) ? new ObjectId(id) : null,
    });
    return result;
  }

  async findFavorite() {
    return await this.find({ favorite: true });
  }

  async deleteAll() {
    const result = await this.Contact.deleteMany({});
    return result.deleteCount;
  }
}

module.exports = ContactService;
```

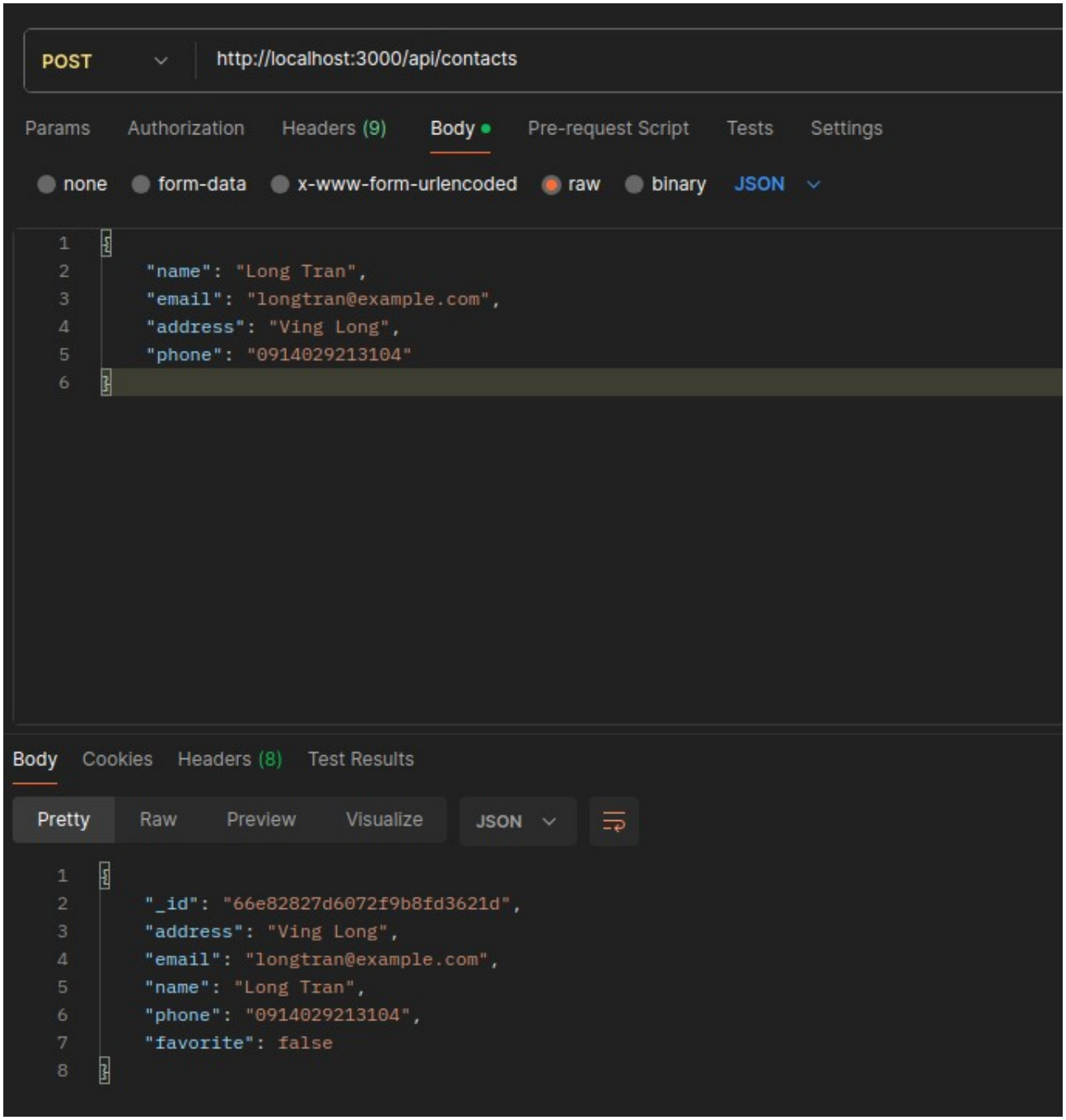
Bước 2: Cài đặt các handler

Cài đặt handler create

```
exports.create = async (req, res) => {
  if (!req.body?.name) {
    return next(new ApiError(400, "Name can not be empty"));
  }

  try {
    const contactService = new ContactService(MongoDB.client);
    const document = await contactService.create(req.body);
    return res.send(document);
  } catch (error) {
    return next(
      new ApiError(500, "An error occurred while creating the contact")
    );
  }
};
```

```
  extractConacData(payload) {
    const contact = {
      name: payload.name,
      email: payload.email,
      address: payload.address,
      phone: payload.phone,
      favorite: payload.favorite,
    };
    //Remove underfined fields
    Object.keys(contact).forEach(
      (key) => contact[key] === undefined && delete contact[key]
    );
    return contact;
  }
  async create(payload) {
    const contact = this.extractConacData(payload);
    const result = await this.Contact.findOneAndUpdate(
      contact,
      { $set: { favorite: contact.favorite === true } },
      { ReturnDocument: "after", upsert: true }
    );
    return result;
  }
```

Dùng postman để kiểm tra:

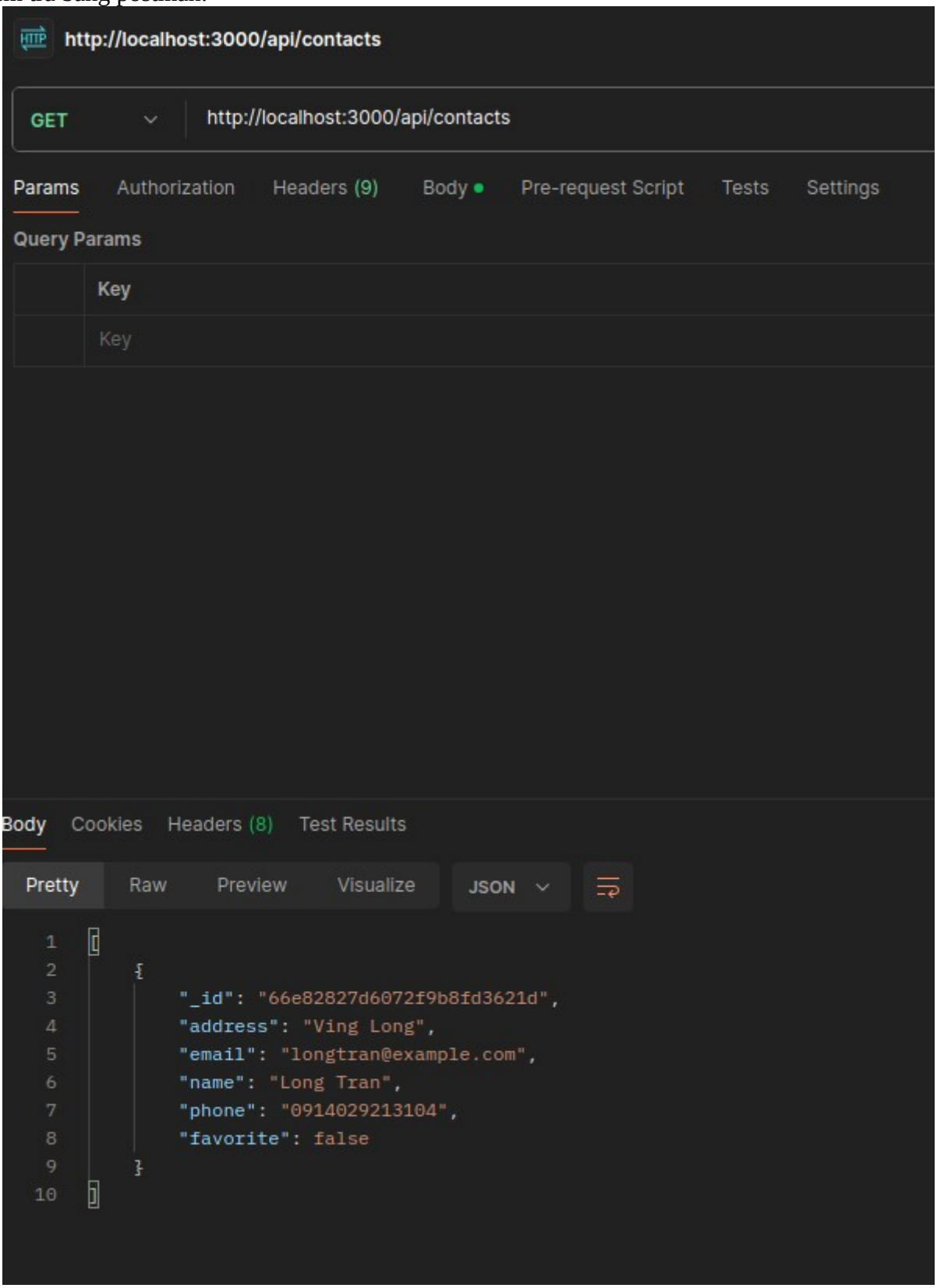


Cài đặt handlerfindAll:

```
exports.findAll = async (req, res, next) => {
  let documents = [];

  try {
    const contactService = new ContactService(MongoDB.client);
    const { name } = req.query;
    if (name) {
      documents = await contactService.findByName(name);
    } else {
      documents = await contactService.find({});
    }
  } catch (error) {
    console.error("Error retrieving contacts:", error.message);
    console.error("Stack trace:", error.stack);
    return next(
      new ApiError(500, "An error occurred while retrieving contacts")
    );
  }
  return res.send(documents);
};
```

```
async find(filter) {
  const cursor = await this.Contact.find(filter);
  return await cursor.toArray();
}

async findByName(name) {
  return await this.find({
    name: { $regex: new RegExp(new RegExp(name)), $options: "i" },
  });
}
```

Kiểm tra bằng postman:

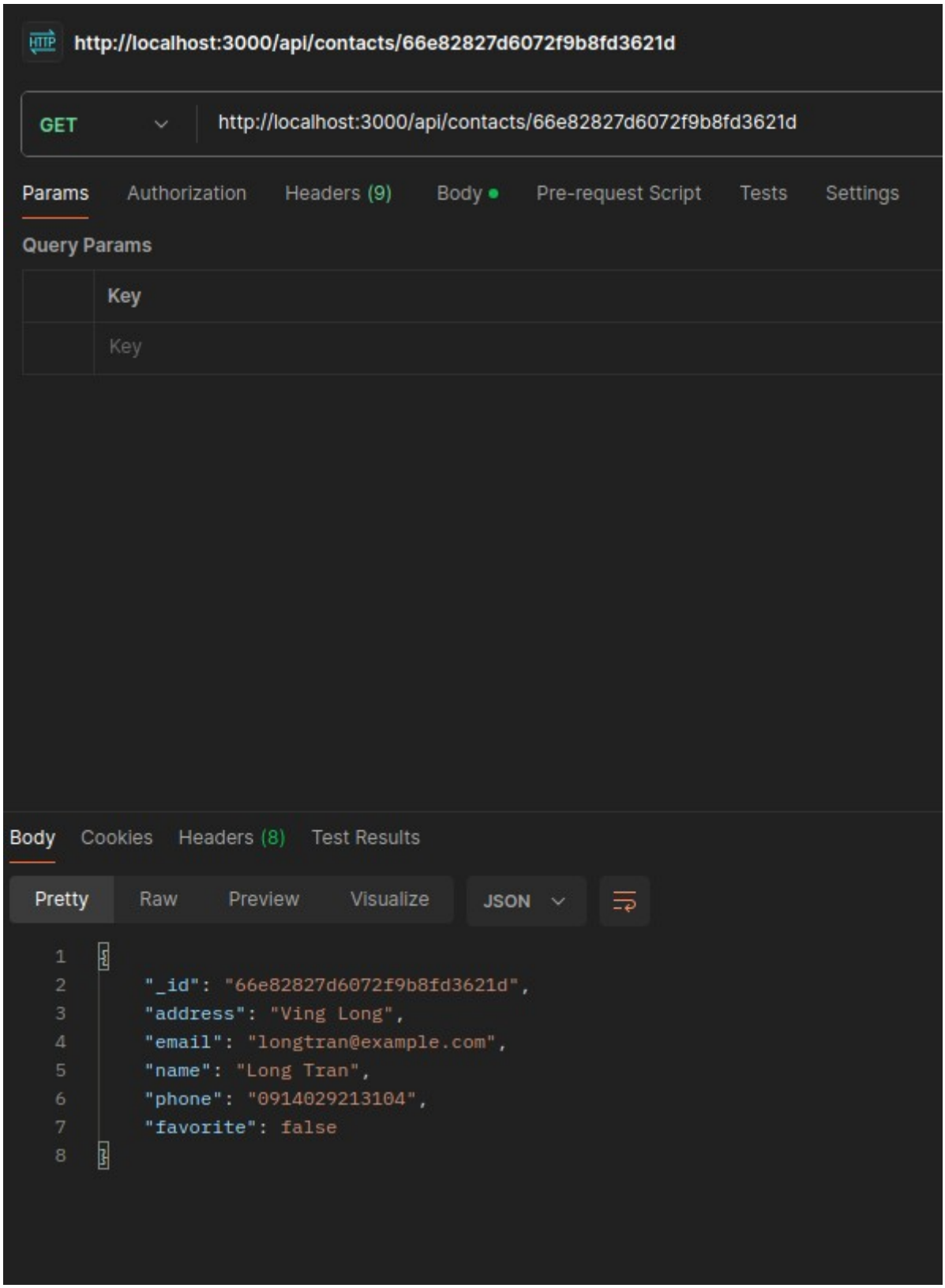


Cài đặt findOne

```
exports.findOne = async (req, res, next) => {
  try {
    const contactService = new ContactService(MongoDB.client);
    const document = await contactService.findById(req.params.id);
    if (!document) {
      return next(new ApiError(404, "Contact not found"));
    }
    return res.send(document);
  } catch (error) {
    return next(
      new ApiError(500, `Error retrieving contact with id=${req.params.id}`)
    );
  }
};
```

```
  async findByName(name) {
    return await this.find({
      name: { $regex: new RegExp(new RegExp(name)), $options: "i" },
    });
  }

  async findById(id) {
    return await this.Contact.findOne({
      _id: ObjectId.isValid(id) ? new ~~ObjectId~~(id) : null,
    });
  }
```

Kiểm tra bằng Postman:

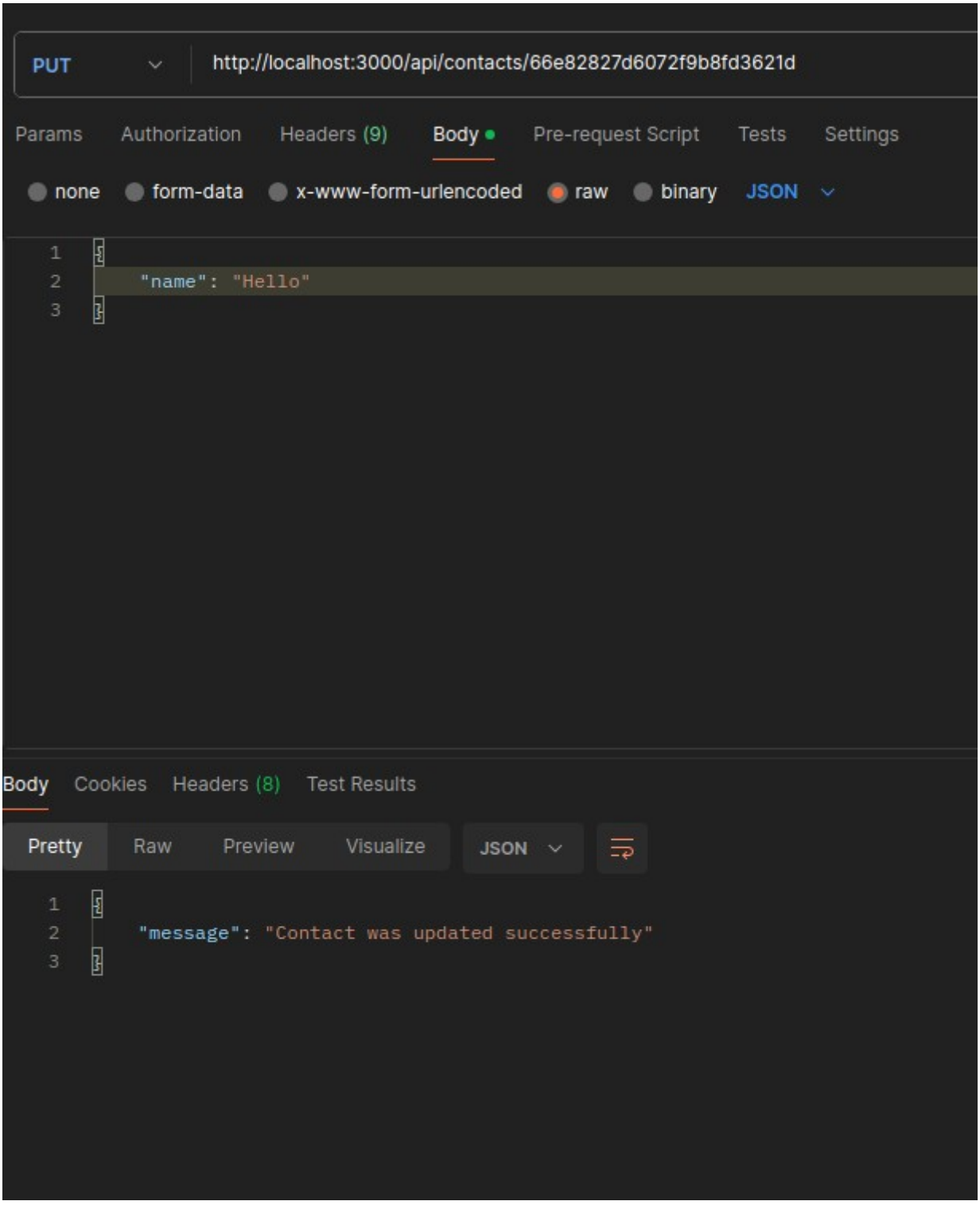


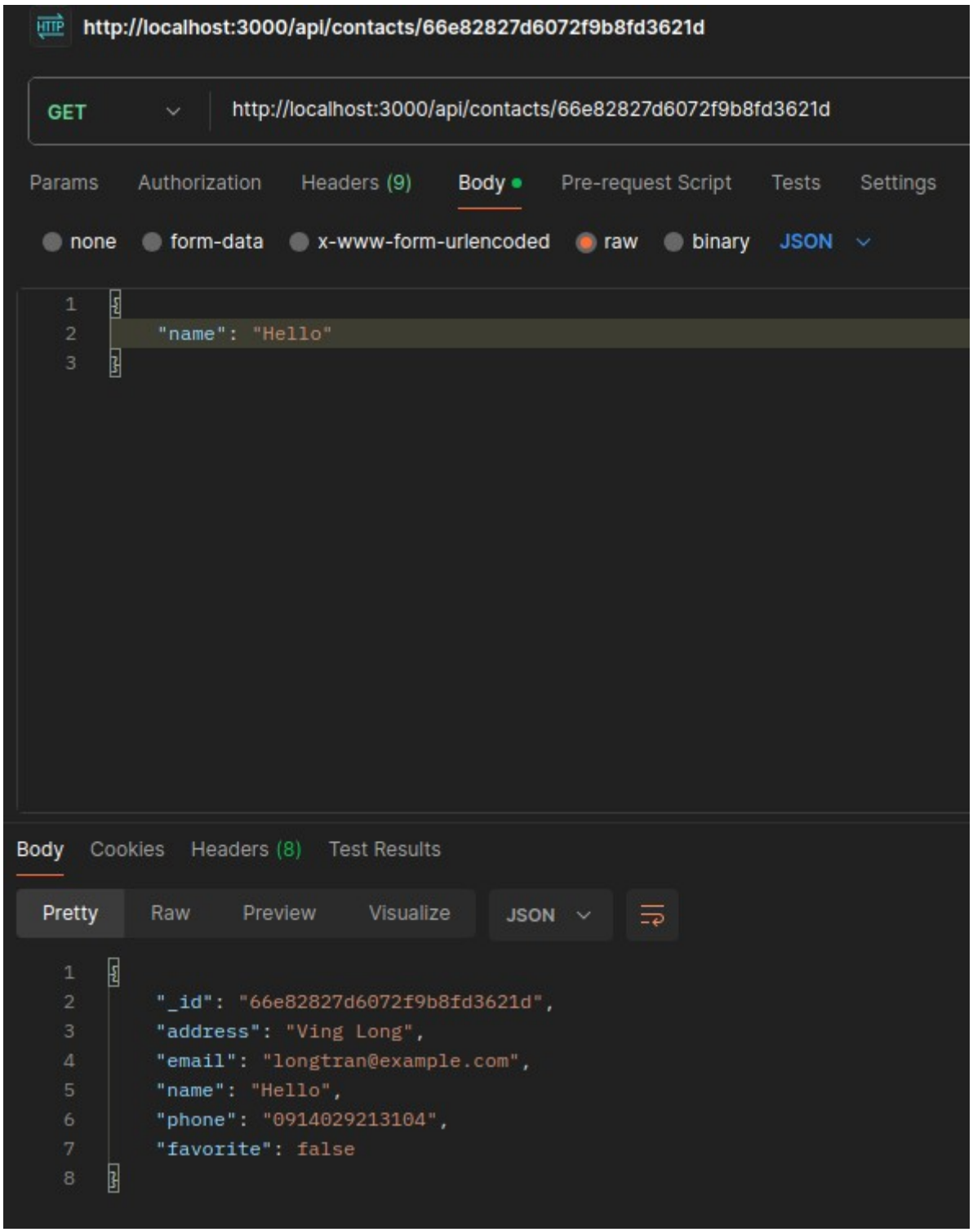
Cài đặt handler update

```
async update(id, payload) {
  const filter = {
    _id: ObjectId.isValid(id) ? new ObjectId(id) : null,
  };
  const update = this.extractConacData(payload);
  const result = await this.Contact.findOneAndUpdate(
    filter,
    { $set: update },
    { returnOriginal: "after" } // Use this for MongoDB versions < v4.2
  );
  return result;
}
```

```
exports.update = async (req, res, next) => {
  if (Object.keys(req.body).length === 0) {
    return next(new ApiError(400, "Data to update can not be empty"));
  }

  try {
    const contactService = new ContactService(MongoDB.client);
    const document = await contactService.update(req.params.id, req.body);

    if (!document) {
      console.error(`Contact with ID ${req.params.id} not found`);
      return next(new ApiError(404, "Contact not found"));
    }

    return res.send({ message: "Contact was updated successfully" });
  } catch (error) {
    console.error(
      `Error while updating contact with ID ${req.params.id}:`,
      error.message
    );
    console.error(error.stack);

    return next(
      new ApiError(500, `Error updating contact with id=${req.params.id}`)
    );
  }
};
```

Kiểm tra bằng postman:



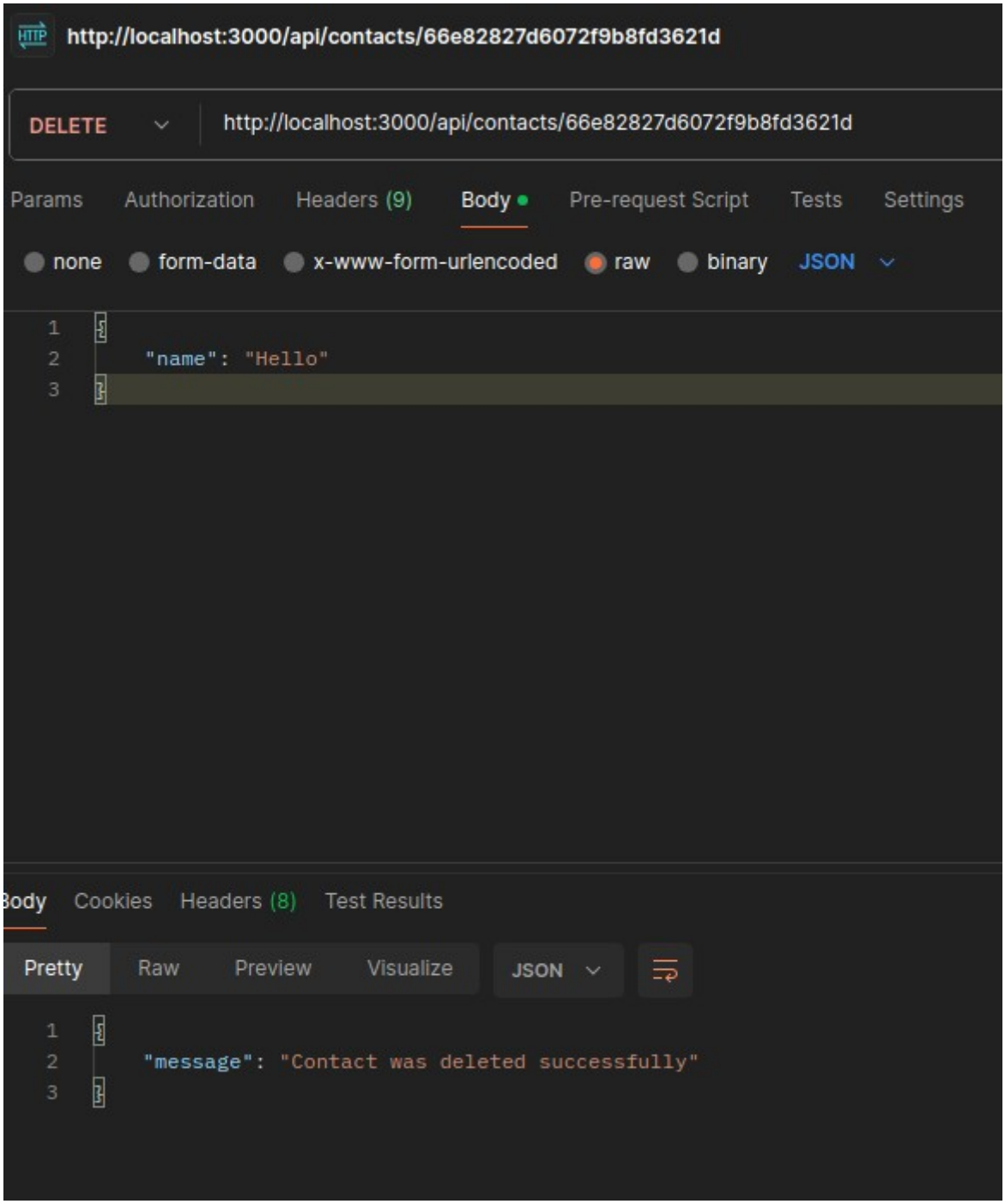

http://localhost:3000/api/contacts/66e82827d6072f9b8fd3621d
GET
http://localhost:3000/api/contacts/66e82827d6072f9b8fd3621d
Params
Authorization
Headers (9)
Body
Pre-request Script
Tests
Settings
none
form-data
x-www-form-urlencoded
raw
binary
JSON
{
"name": "Hello"
}
Body
Cookies
Headers (8)
Test Results
Pretty
Raw
Preview
Visualize
JSON
{
"_id": "66e82827d6072f9b8fd3621d",
"address": "Ving Long",
"email": "longtran@example.com",
"name": "Hello",
"phone": "0914029213104",
"favorite": false
}

Cài đặt handler delete

```
exports.delete = async (req, res, next) => {
  try {
    const contactService = new ContactService(MongoDB.client);
    const document = await contactService.delete(req.params.id);
    if (!document) {
      return next(new ApiError(404, "Contact not found"));
    }
    return res.send({ message: "Contact was deleted successfully" });
  } catch (error) {
    return next(
      new ApiError(500, `Could not delete contact with id=${req.params.id}`)
    );
  }
};
```

```
async delete(id) {
  const result = await this.Contact.findOneAndDelete({
    _id: ObjectId.isValid(id) ? new ObjectId(id) : null,
  });
  return result;
}
```

Kiểm tra bằng postman

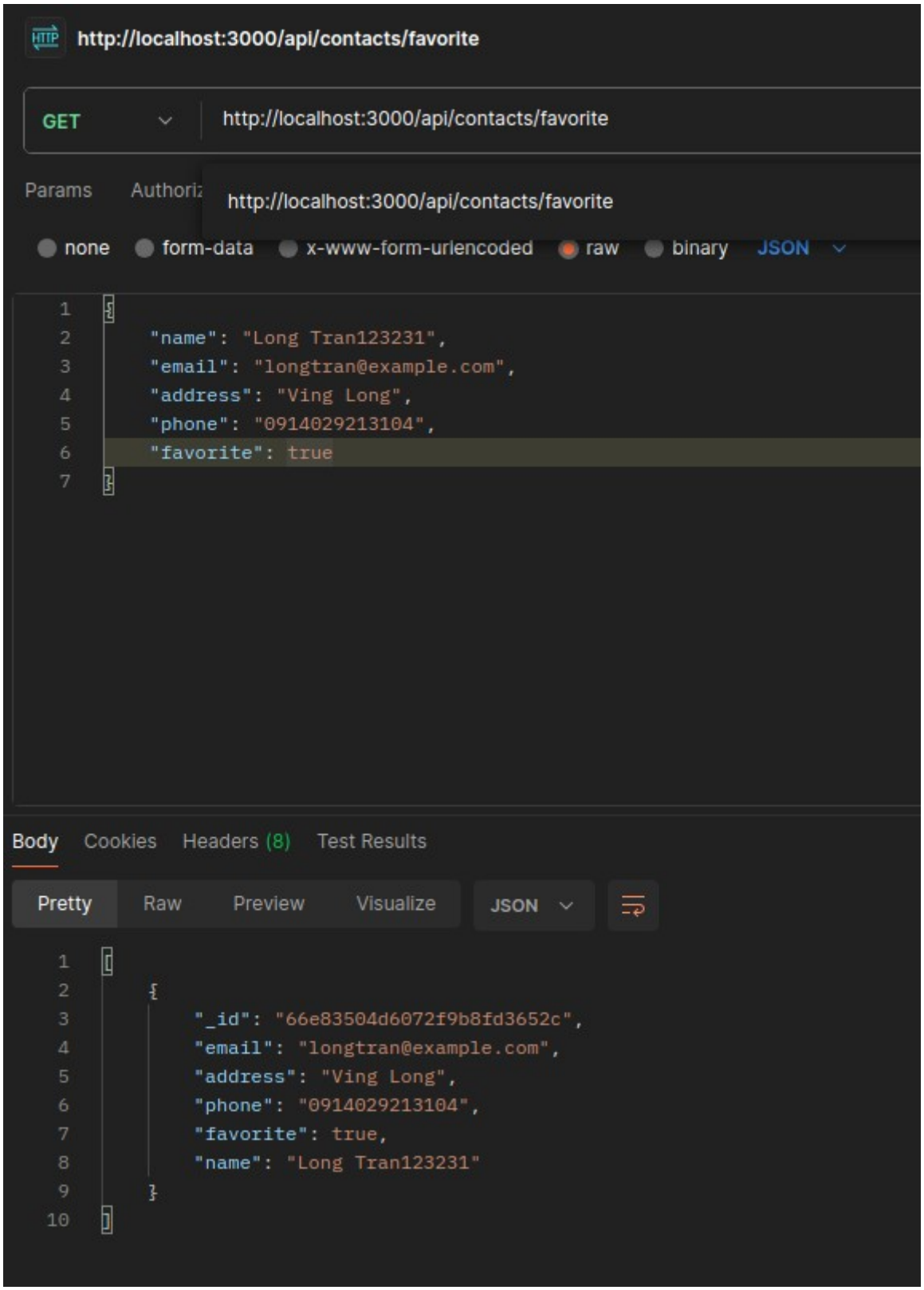


Cài đặt handler findAllFavorie

```
exports.findAllFavorite = async (req, res, next) => {
  try {
    const contactService = new ContactService(MongoDB.client);
    const documents = await contactService.findFavorite();
    return res.send(documents);
  } catch (error) {
    return next(
      new ApiError(500, "An error occurred while retrieving favorite contacts")
    );
  }
};
```

```
async findFavorite() {
  return await this.find({ favorite: true });
}
```

Kiểm tra với postman

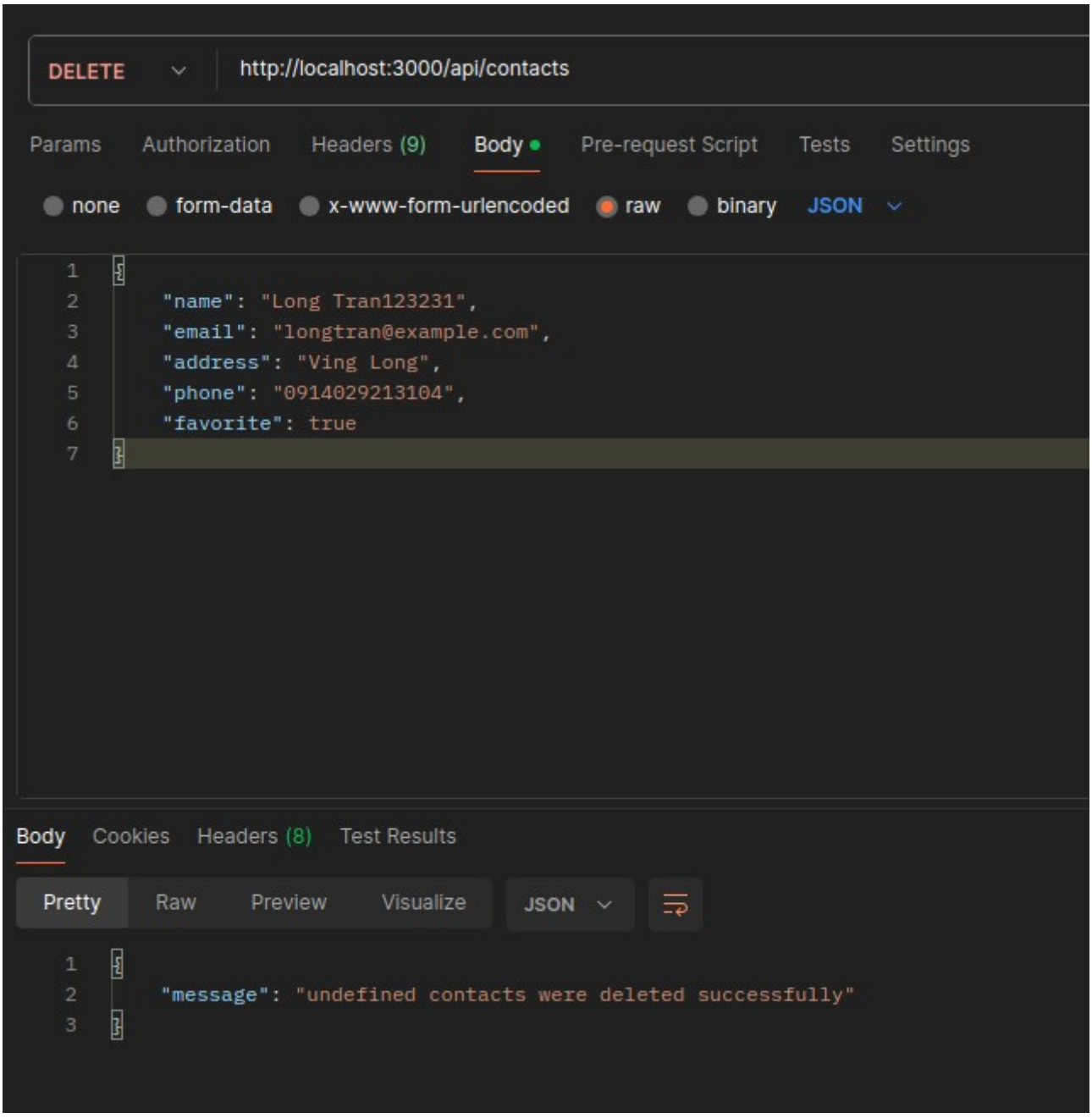


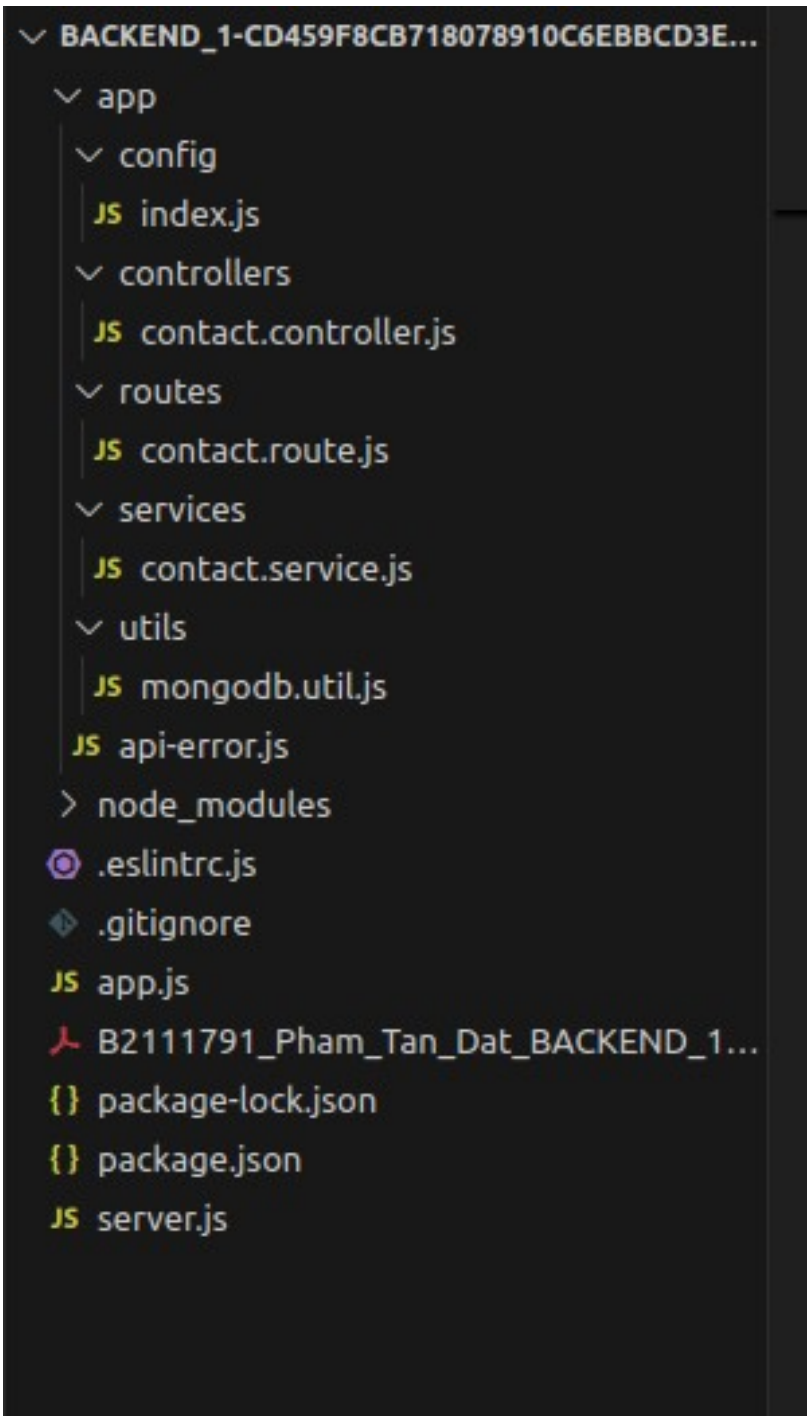
Cài đặt handler deleteAll:

```
exports.deleteAll = async (req, res, next) => {
  try {
    const contactService = new ContactService(MongoDB.client);
    const deleteCount = await contactService.deleteAll();
    return res.send({
      message: `${deleteCount} contacts were deleted successfully`,
    });
  } catch (error) {
    return next(
      new ApiError(500, "An error occurred while removing all contacts")
    );
  }
};
```

```
    async deleteAll() {
      const result = await this.Contact.deleteMany({});
      return result.deleteCount;
    }
  }
```

Kiểm tra bằng postman:




BACKEND_1-CD459F8CB718078910C6EBBCD3E...
app
config
index.js
controllers
contact.controller.js
routes
contact.route.js
services
contact.service.js
utils
mongodb.util.js
api-error.js
node_modules
.eslintrc.js
.gitignore
app.js
B2111791_Pham_Tan_Dat_BACKEND_1...
package-lock.json
package.json
server.js