

Creating a RESTful API using express.js and creating a database and index in MongoDB.

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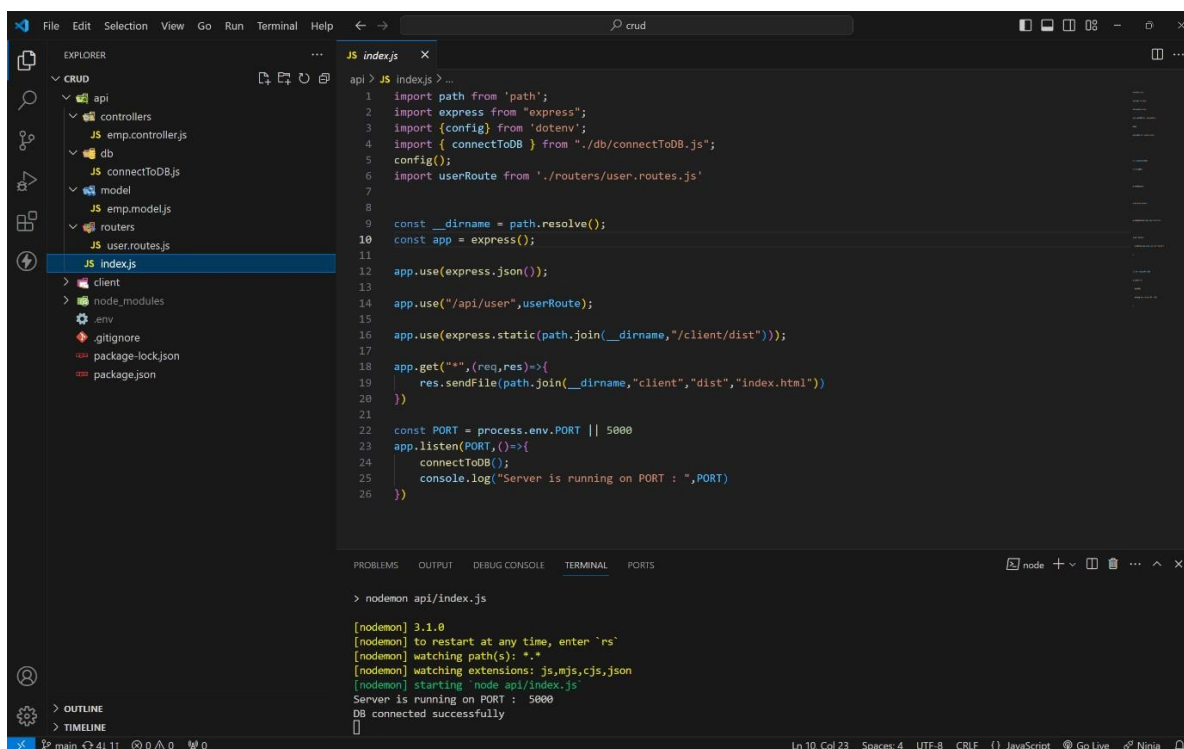
Roll NO: 20NN1A0547

College Name: Vignan's Nirula Institute of Technology and Science For women

University: JNTUK

source code :

index.js file :



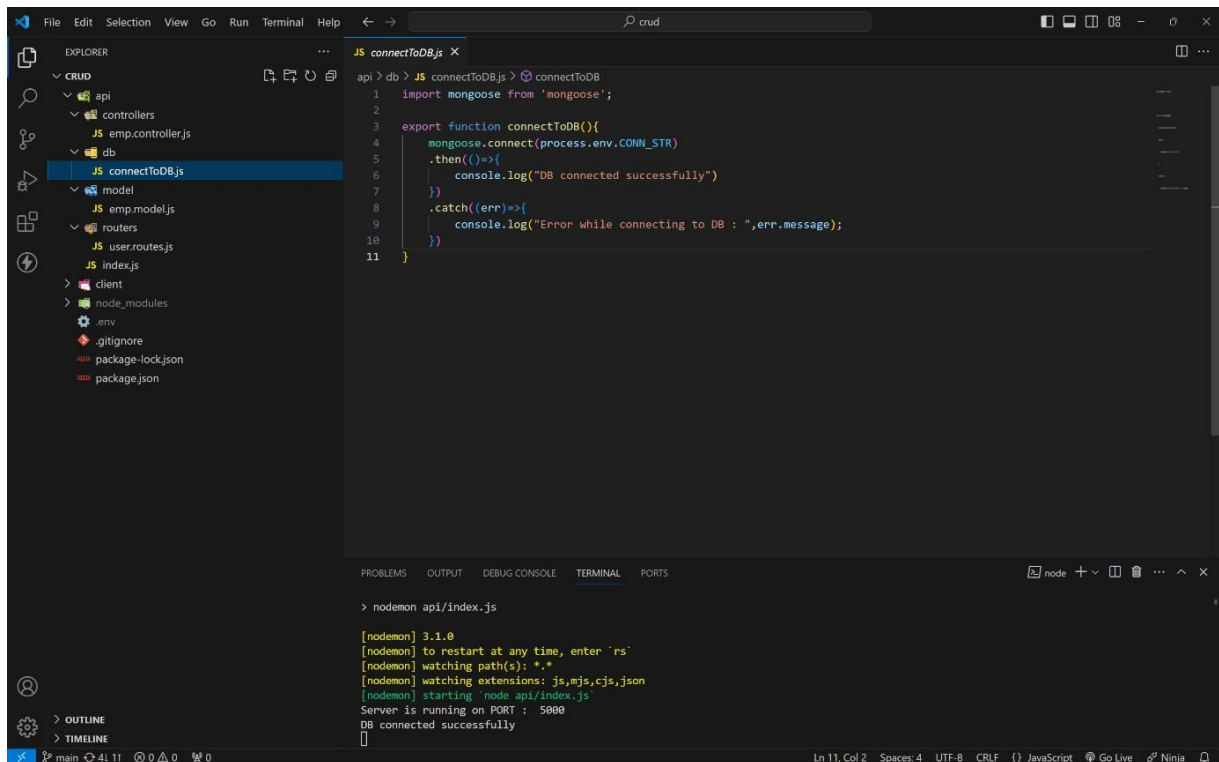
The screenshot shows a Visual Studio Code editor with a project named 'crud'. The Explorer sidebar on the left shows the file structure, with 'api/index.js' selected. The main editor displays the content of 'index.js', which is a Node.js script using Express.js to serve static files and connect to a MongoDB database. The terminal at the bottom shows the command 'nodemon api/index.js' being executed, and the output indicates that the server is running successfully on port 5000.

```
File Edit Selection View Go Run Terminal Help
api > JS index.js > ...
1 import path from 'path';
2 import express from 'express';
3 import {config} from 'dotenv';
4 import { connectToDB } from './db/connectToDB.js';
5 config();
6 import userRoute from './routes/user.routes.js'
7
8
9 const __dirname = path.resolve();
10 const app = express();
11
12 app.use(express.json());
13
14 app.use("/api/user",userRoute);
15
16 app.use(express.static(path.join(__dirname,"/client/dist")));
17
18 app.get("*",(req,res)=>{
19   res.sendFile(path.join(__dirname,"client","dist","index.html"))
20 })
21
22 const PORT = process.env.PORT || 5000
23 app.listen(PORT,()=>{
24   connectToDB();
25   console.log("Server is running on PORT : ",PORT)
26 })
```

```
> nodemon api/index.js

[nodemon] 3.1.0
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node api/index.js`
Server is running on PORT : 5000
DB connected successfully
```

MONGODB CONNECTION :



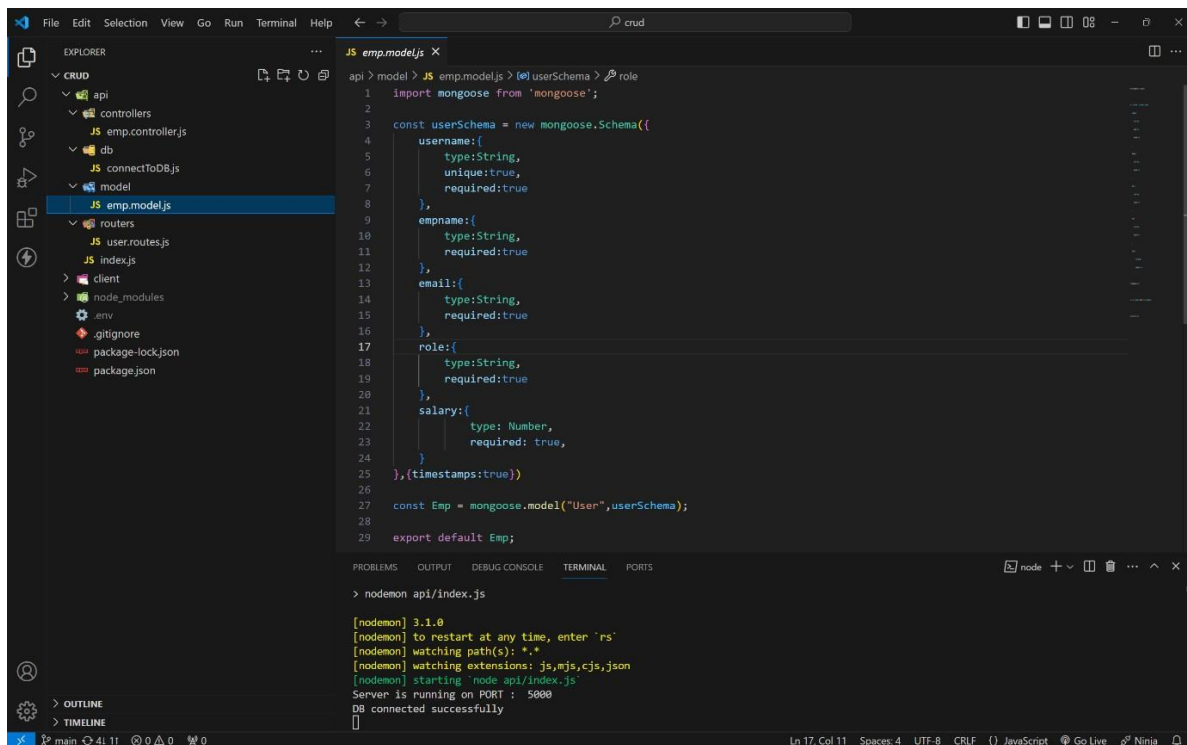
The screenshot shows the VS Code interface with the Explorer panel on the left displaying the project structure. The file `connectToDB.js` is selected under the `api/db` directory. The main editor displays the code for `connectToDB.js`, which imports `mongoose` and defines a `connectToDB` function. The function attempts to connect to a MongoDB instance using `process.env.CONN_STR` and logs the result. The terminal at the bottom shows the command `nodemon api/index.js` being executed, and the output indicates that the server is running on port 5000 and the database connection was successful.

```
api > db > JS connectToDB.js > connectToDB
1 import mongoose from 'mongoose';
2
3 export function connectToDB(){
4   mongoose.connect(process.env.CONN_STR)
5   .then(()=>{
6     console.log("DB connected successfully")
7   })
8   .catch((err)=>{
9     console.log("Error while connecting to DB : ",err.message);
10  })
11 }
```

```
> nodemon api/index.js

[nodemon] 3.1.0
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node api/index.js`
Server is running on PORT : 5000
DB connected successfully
[]
```

MODEL :



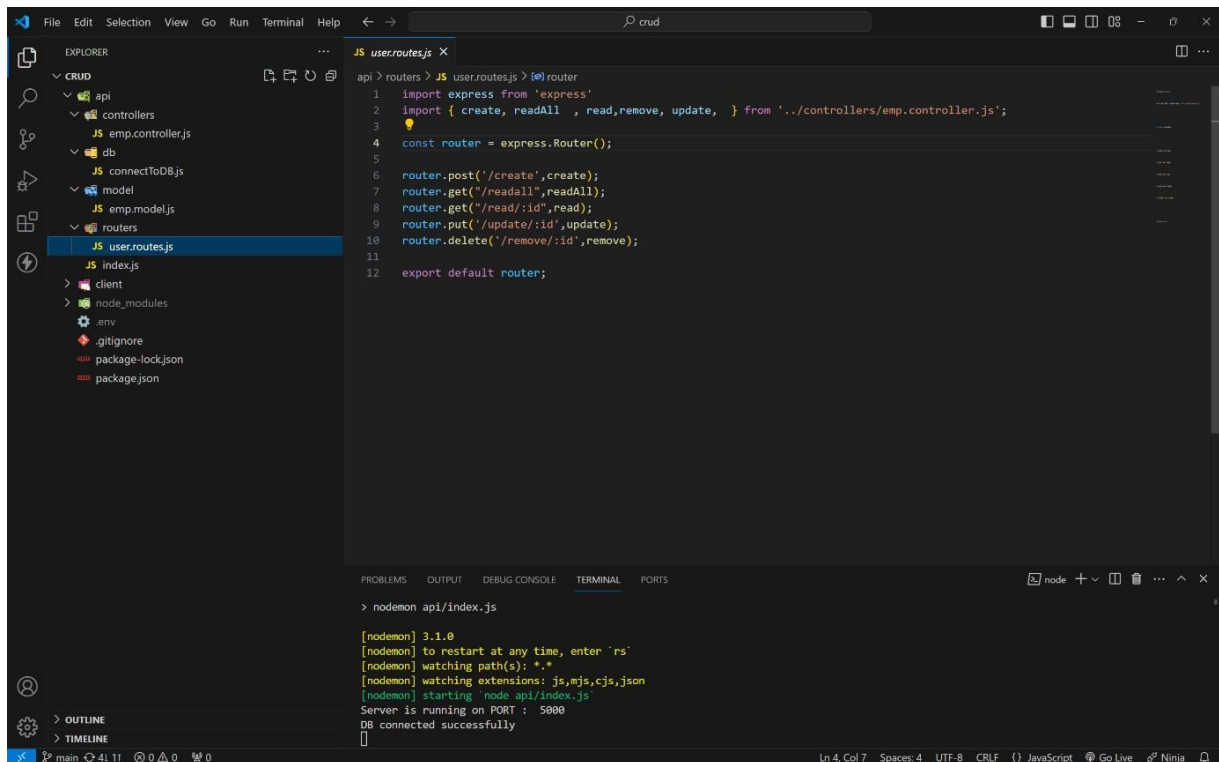
The screenshot shows the VS Code interface with the Explorer panel on the left displaying the project structure. The file `emp.model.js` is selected under the `api/model` directory. The main editor displays the code for `emp.model.js`, which imports `mongoose` and defines a `userSchema` for a `User` model. The schema includes fields for `username`, `empname`, `email`, `role`, and `salary`. The terminal at the bottom shows the command `nodemon api/index.js` being executed, and the output indicates that the server is running on port 5000 and the database connection was successful.

```
api > model > JS emp.model.js > userSchema > role
1 import mongoose from 'mongoose';
2
3 const userSchema = new mongoose.Schema({
4   username:{
5     type:String,
6     unique:true,
7     required:true
8   },
9   empname:{
10    type:String,
11    required:true
12  },
13  email:{
14    type:String,
15    required:true
16  },
17  role:{
18    type:String,
19    required:true
20  },
21  salary:{
22    type: Number,
23    required: true,
24  }
25 },{timestamps:true})
26
27 const Emp = mongoose.model("User",userSchema);
28
29 export default Emp;
```

```
> nodemon api/index.js

[nodemon] 3.1.0
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node api/index.js`
Server is running on PORT : 5000
DB connected successfully
[]
```

ROUTES:



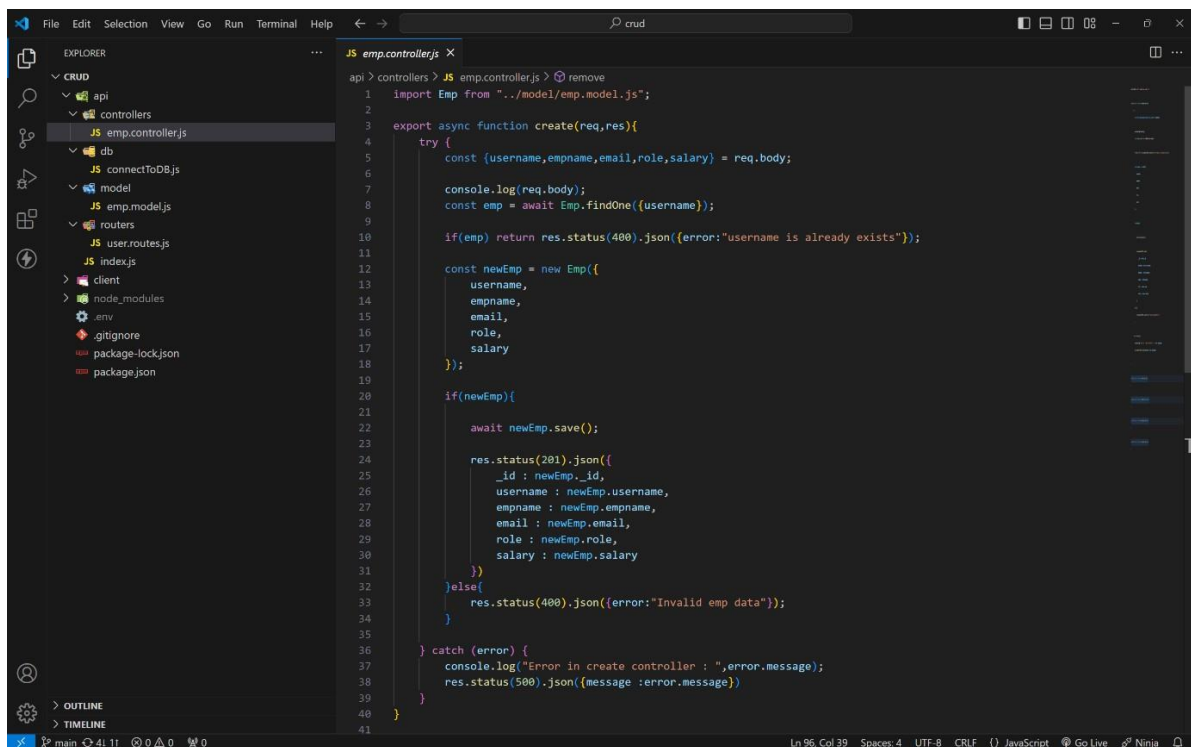
The screenshot shows the VS Code editor with the Explorer sidebar on the left. The 'api' folder is expanded, showing subfolders 'controllers' and 'routers'. The 'routers' folder is selected, and the file 'user.routes.js' is open in the editor. The code in 'user.routes.js' defines an Express router with routes for create, read, update, and delete operations. The terminal at the bottom shows the command 'nodemon api/index.js' being executed, and the output indicates that the server is running on port 5000 and the database is connected successfully.

```
api > routers > JS user.routes.js > router
1 import express from 'express'
2 import { create, readAll, read, remove, update, } from '../controllers/emp.controller.js';
3
4 const router = express.Router();
5
6 router.post('/create', create);
7 router.get('/readall', readAll);
8 router.get('/read/:id', read);
9 router.put('/update/:id', update);
10 router.delete('/remove/:id', remove);
11
12 export default router;
```

```
> nodemon api/index.js
[nodemon] 3.1.0
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting 'node api/index.js'
Server is running on PORT : 5000
DB connected successfully
[]
```

CONTROLLERS:

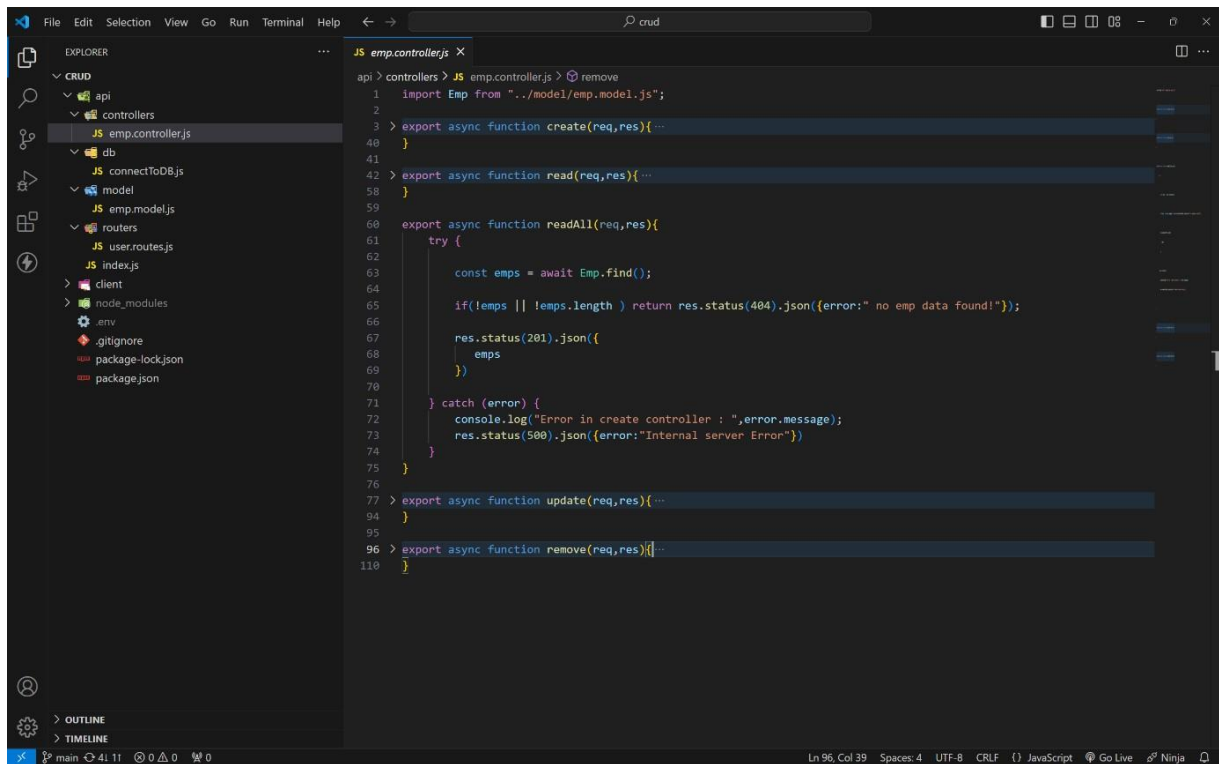
CREATE :



The screenshot shows the VS Code editor with the Explorer sidebar on the left. The 'api' folder is expanded, showing subfolders 'controllers' and 'routers'. The 'controllers' folder is selected, and the file 'emp.controller.js' is open in the editor. The code in 'emp.controller.js' defines an async function 'create' that takes a request and a response object as arguments. It attempts to create a new employee by saving a new instance of the 'Emp' model. If the employee already exists, it returns a 400 status with an error message. If the employee is successfully created, it returns a 201 status with the employee details. If there is an error, it returns a 500 status with the error message.

```
api > controllers > JS emp.controller.js > remove
1 import Emp from '../model/emp.model.js';
2
3 export async function create(req,res){
4   try {
5     const {username,empname,email,role,salary} = req.body;
6
7     console.log(req.body);
8     const emp = await Emp.findOne({username});
9
10    if(emp) return res.status(400).json({error:"username is already exists"});
11
12    const newEmp = new Emp({
13      username,
14      empname,
15      email,
16      role,
17      salary
18    });
19
20    if(newEmp){
21      await newEmp.save();
22
23      res.status(201).json({
24        _id : newEmp._id,
25        username : newEmp.username,
26        empname : newEmp.empname,
27        email : newEmp.email,
28        role : newEmp.role,
29        salary : newEmp.salary
30      });
31    }
32    } else {
33      res.status(400).json({error:"Invalid emp data"});
34    }
35  } catch (error) {
36    console.log("Error in create controller : ",error.message);
37    res.status(500).json({message : error.message})
38  }
39 }
40
41
```

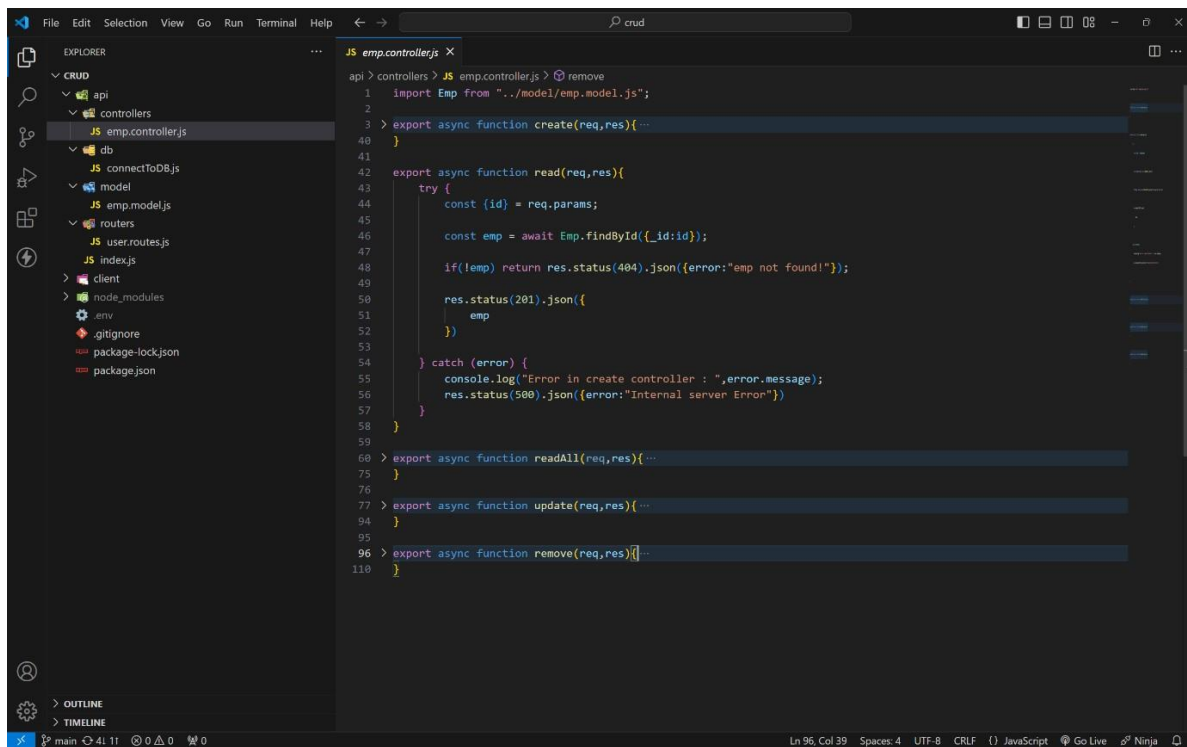
READALL:



The screenshot shows the VS Code editor with the file explorer on the left and the code editor in the center. The file explorer shows the project structure with folders like api, controllers, db, model, routers, and user.routes.js. The code editor shows the implementation of the readAll function in emp.controller.js. The code is as follows:

```
api > controllers > JS emp.controller.js > remove
1  import Emp from "../model/emp.model.js";
2
3  > export async function create(req,res){ ...
40 }
41
42 > export async function read(req,res){ ...
58 }
59
60 export async function readAll(req,res){
61   try {
62     const emps = await Emp.find();
63
64     if(!emps || !emps.length ) return res.status(404).json({error:" no emp data found!"});
65
66     res.status(201).json({
67       emps
68     })
69   }
70   catch (error) {
71     console.log("Error in create controller : ",error.message);
72     res.status(500).json({error:"Internal server Error"});
73   }
74 }
75
76
77 > export async function update(req,res){ ...
94 }
95
96 > export async function remove(req,res){ ...
110 }
```

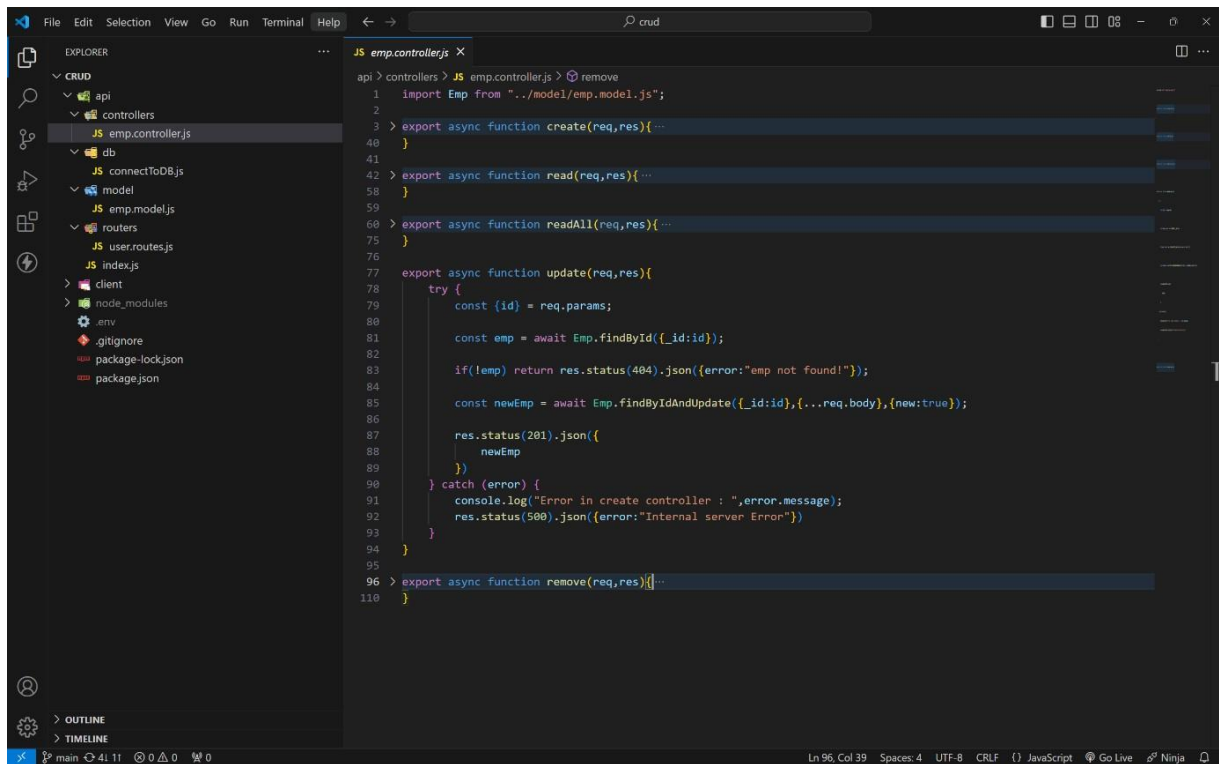
READONE :



The screenshot shows the VS Code editor with the file explorer on the left and the code editor in the center. The file explorer shows the project structure with folders like api, controllers, db, model, routers, and user.routes.js. The code editor shows the implementation of the read function in emp.controller.js. The code is as follows:

```
api > controllers > JS emp.controller.js > remove
1  import Emp from "../model/emp.model.js";
2
3  > export async function create(req,res){ ...
40 }
41
42 export async function read(req,res){
43   try {
44     const {id} = req.params;
45
46     const emp = await Emp.findById({_id:id});
47
48     if(!emp) return res.status(404).json({error:"emp not found!"});
49
50     res.status(201).json({
51       emp
52     })
53   }
54   catch (error) {
55     console.log("Error in create controller : ",error.message);
56     res.status(500).json({error:"Internal server Error"});
57   }
58 }
59
60 > export async function readAll(req,res){ ...
75 }
76
77 > export async function update(req,res){ ...
94 }
95
96 > export async function remove(req,res){ ...
110 }
```

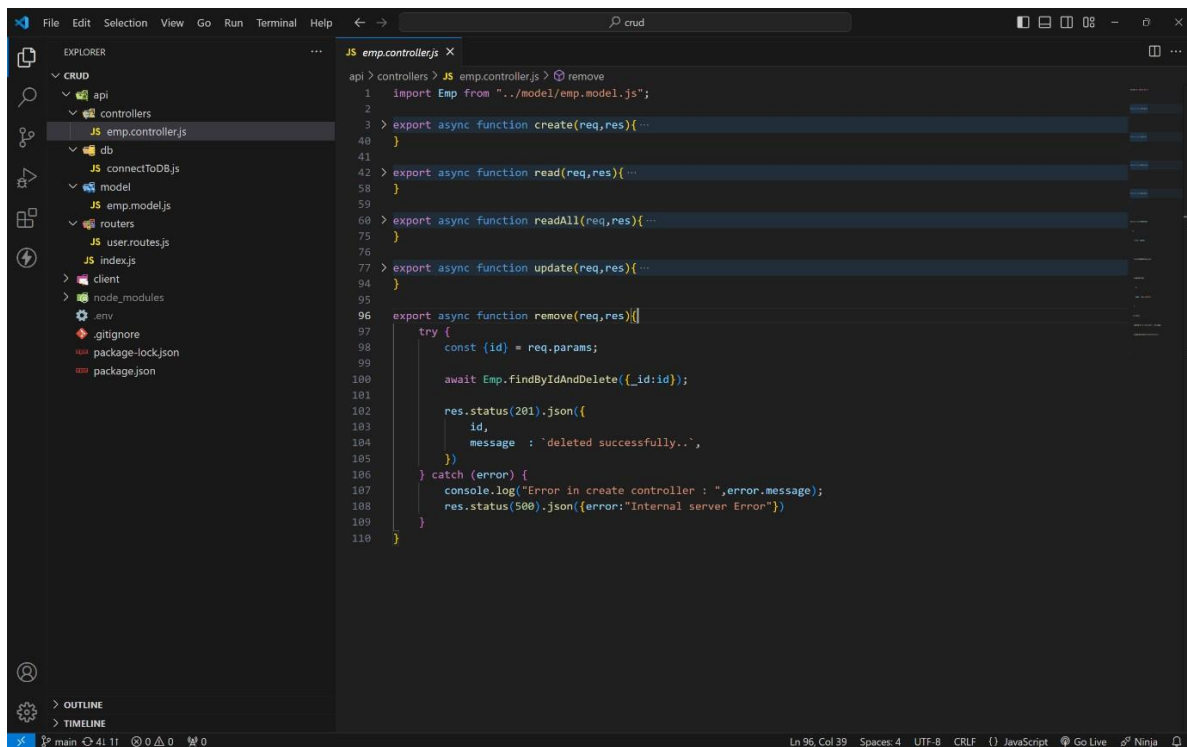
UPDATE :



The screenshot shows the VS Code editor with the file explorer on the left and the code editor in the center. The file explorer shows the project structure with folders like api, controllers, db, model, routers, and user.routes.js. The code editor displays the contents of `emp.controller.js`. The code includes imports for `Emp` from `../model/emp.model.js` and several async functions: `create`, `read`, `readAll`, `update`, and `remove`. The `update` function is highlighted, showing a try-catch block that updates an employee's details and returns a 201 status code.

```
api > controllers > JS emp.controller.js > remove
1  import Emp from "../model/emp.model.js";
2
3  > export async function create(req,res){ ...
40 }
41
42 > export async function read(req,res){ ...
58 }
59
60 > export async function readAll(req,res){ ...
75 }
76
77 export async function update(req,res){
78   try {
79     const {id} = req.params;
80
81     const emp = await Emp.findById(_id:id);
82
83     if(!emp) return res.status(404).json({error:"emp not found!"});
84
85     const newEmp = await Emp.findByIdAndUpdate(_id:id,{...req.body},{new:true});
86
87     res.status(201).json({
88       newEmp
89     })
90   } catch (error) {
91     console.log("Error in create controller : ",error.message);
92     res.status(500).json({error:"Internal server Error"});
93   }
94 }
95
96 > export async function remove(req,res){ ...
110 }
```

DELETE :



The screenshot shows the VS Code editor with the file explorer on the left and the code editor in the center. The file explorer shows the project structure with folders like api, controllers, db, model, routers, and user.routes.js. The code editor displays the contents of `emp.controller.js`. The code includes imports for `Emp` from `../model/emp.model.js` and several async functions: `create`, `read`, `readAll`, `update`, and `remove`. The `remove` function is highlighted, showing a try-catch block that deletes an employee by ID and returns a 201 status code with a success message.

```
api > controllers > JS emp.controller.js > remove
1  import Emp from "../model/emp.model.js";
2
3  > export async function create(req,res){ ...
40 }
41
42 > export async function read(req,res){ ...
58 }
59
60 > export async function readAll(req,res){ ...
75 }
76
77 > export async function update(req,res){ ...
94 }
95
96 export async function remove(req,res){
97   try {
98     const {id} = req.params;
99
100     await Emp.findByIdAndDelete(_id:id);
101
102     res.status(201).json({
103       id,
104       message : 'deleted successfully..',
105     })
106   } catch (error) {
107     console.log("Error in create controller : ",error.message);
108     res.status(500).json({error:"Internal server Error"});
109   }
110 }
```

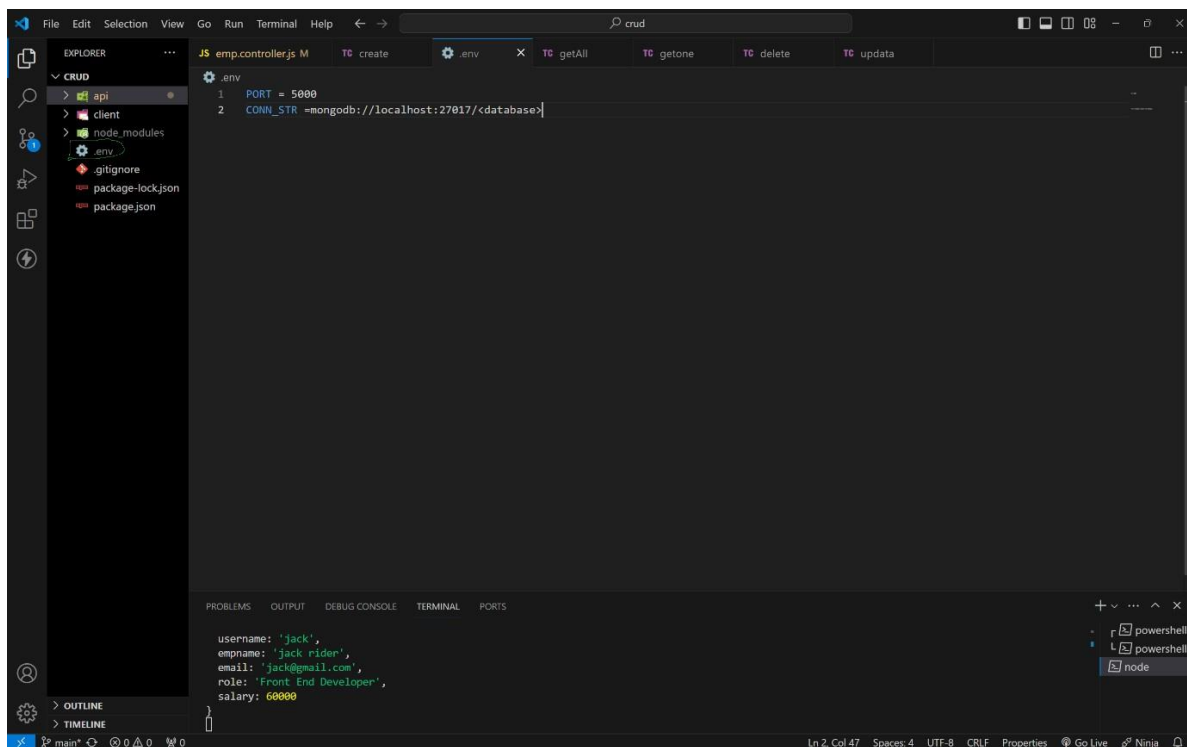
HOW TO RUN ON LOCALLY :

1. Create a folder as any name.
2. Open that folder in any code editor (vs code).
3. Open terminal (ctrl + ~) on code editor.
4. Type this code to get code locally.
git clone <https://github.com/4727yesuraju/crud.git>
5. Now move to crud folder (cd crud in terminal)
6. Ignore client folder.
7. Here crud is root folder.
8. In root folder create a .env file and create a PORT and

CONN_STR variables and assign value.

ex : PORT = 3000 (commonly any number between 3000 - 8080).

CONN_STR = your mongodb_connection_string.



--- trouble in above process ? :

simply paste this code in .env file .

PORT = 5000

CONN_STR=mongodb+srv://4727yesuraju:rough@cluster0.wbclvtg.mongodb.net
/?retryWrites=true&w=majority&appName=Cluster0

9. After in terminal (in crud folder as root folder) type this command to run server.

npm i (installing all dependencies)

npm run dev (to run server)

10. if you get below message in terminal then your server will running successfully.

```
PS C:\Users\4727y\OneDrive\Desktop\internshala\crud> npm run dev

> crud@1.0.0 dev
> nodemon api/index.js

[nodemon] 3.1.0
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node api/index.js`
Server is running on PORT : 5000
DB connected successfully
█
```

route and its functionality :

For this use any API using tools like Postman or Thunder Client.

i use THUNDER CLIENT.

CREATE ROUTE :

- 1. This route is used to create a new employee in database with a below fields.**

username, empname, email, role, salary

- 2. in thunder client click on new request and select this options method as post**

url as `http://localhost:5000/api/user/create`

pass this json data as a body as your required value.

```
{  
  
  "username": "jack",  
  
  "empname": "jack rider",  
  
  "email": "jack@gmail.com",  
  
  "role": "Front End Developer",  
  
  "salary": 60000  
}
```

- 3. finally press send to insert data in mongodb data base and get a inserted**

data as a response.

- 4. If user is already in db it will return User is already exist as response.**

for more details visit below output images...

READONE :

1. This route is used to read specific user info by passing that user id as a param.

method as get

url as

http://localhost:5000/api/user/read/65ed7b3d76e1dcc9a51654ca

2. After sending you will get that specific user details as response.

READALL :

- 1 . Read all route is used to get all the user data existing in the mongodb data base .

method as get

url as http://localhost:5000/api/user/readall

- 2 . After sending you will get that all user details as response.

UPDATE :

1. This route is used to update specific user by passing that user id as a param.

method as put

url as

http://localhost:5000/api/user/update/65ed7b3d76e1dcc9a51654ca

2. After sending you will get updated user details as response.

DELETE :

1. This route is used to delete specific user by passing that user id as a param.

method as delete

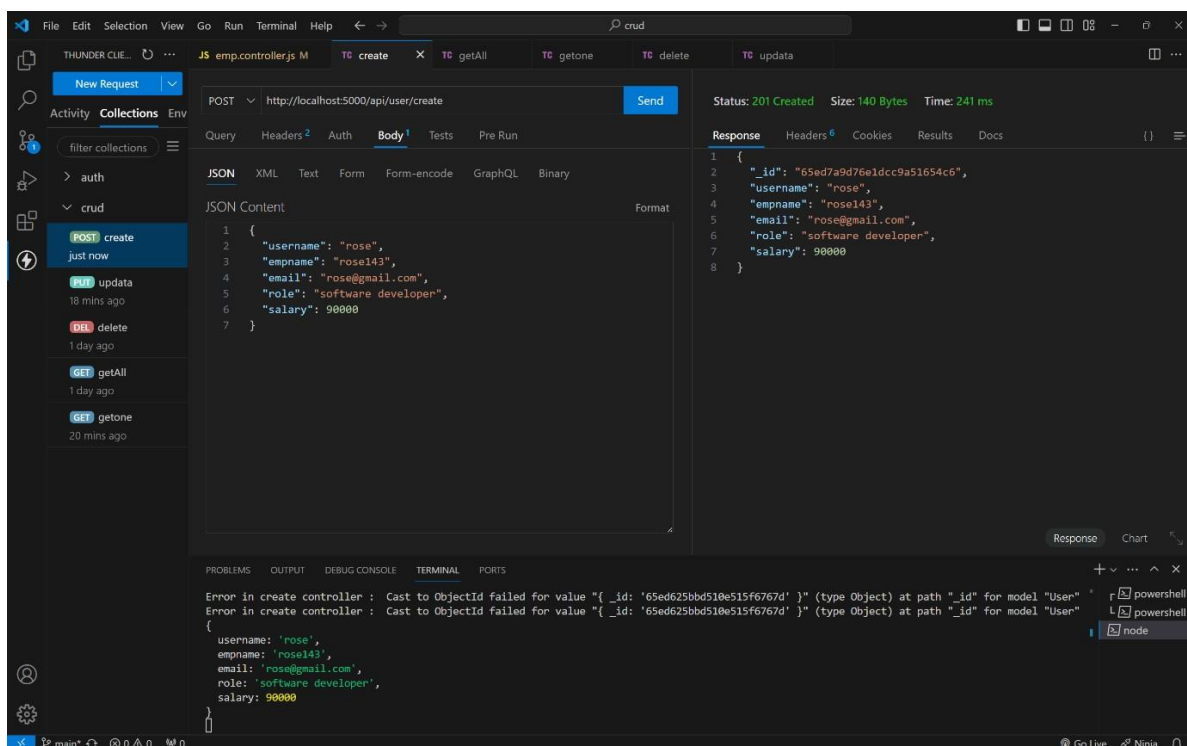
url as

`http://localhost:5000/api/user/delete/65ed7b3d76e1dcc9a51654ca`

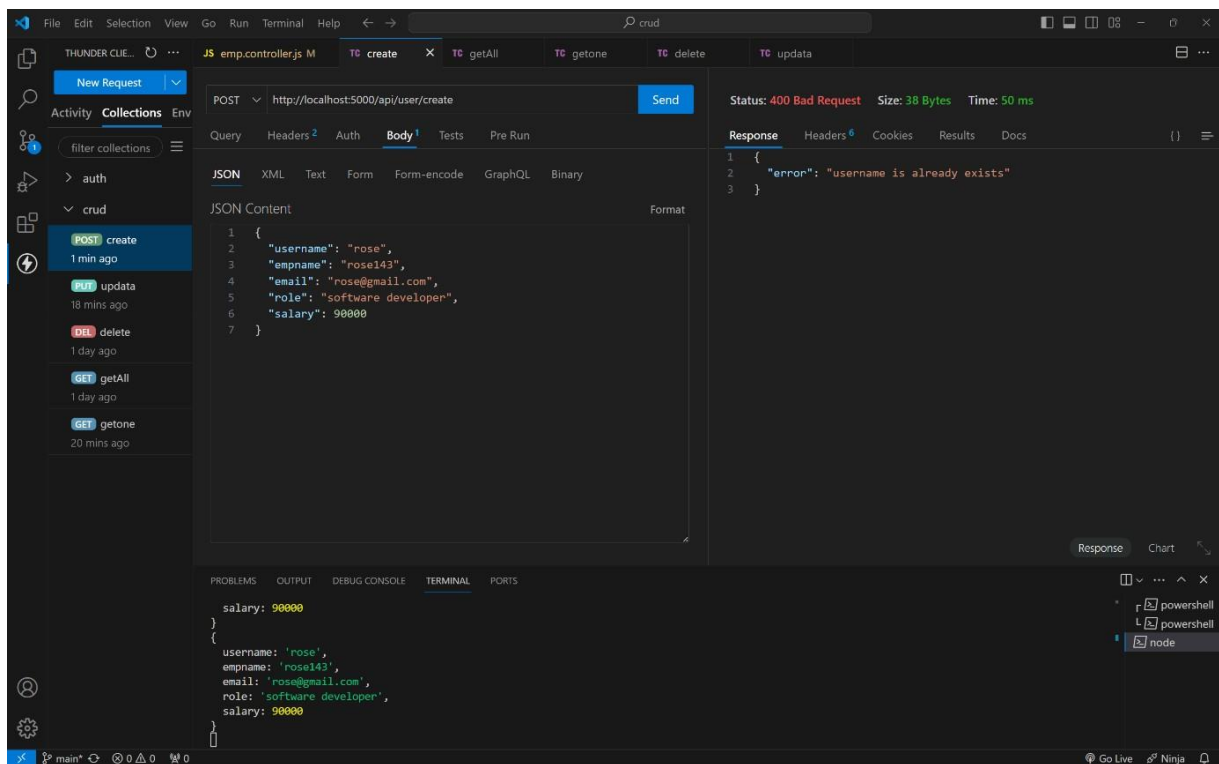
2. After sending you will deleted successfully as response.

OUTPUT :

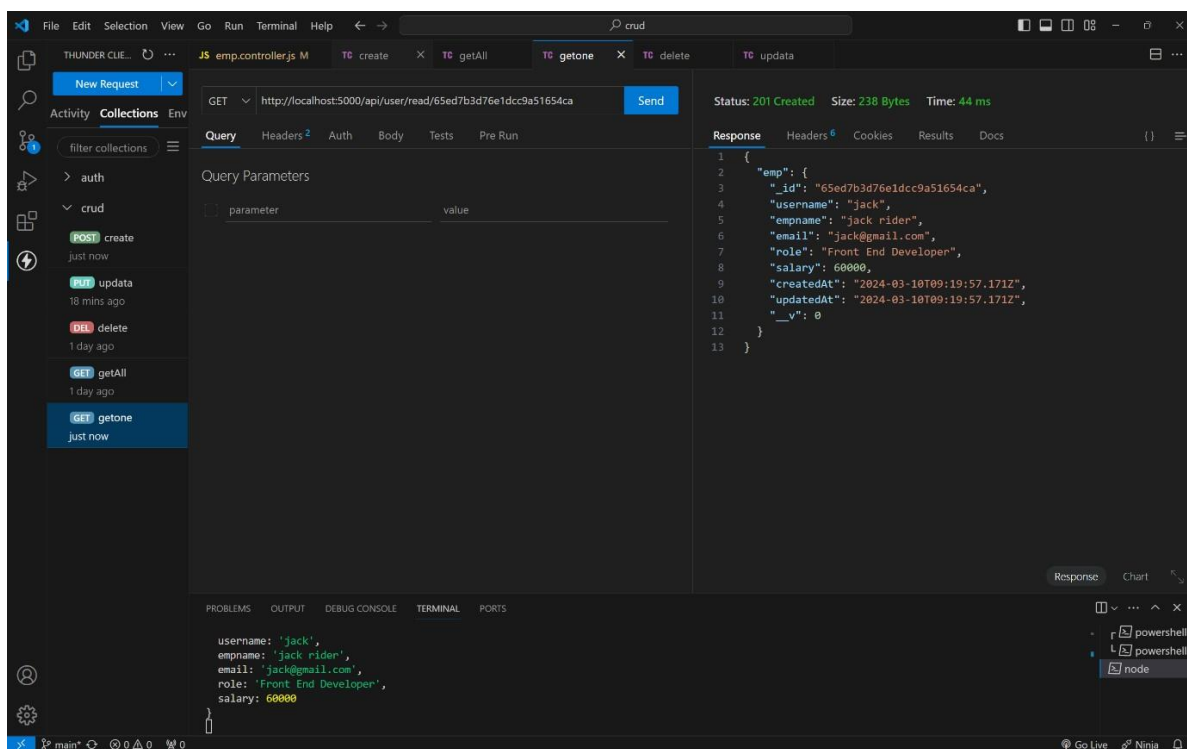
CREATE A NEW USER :



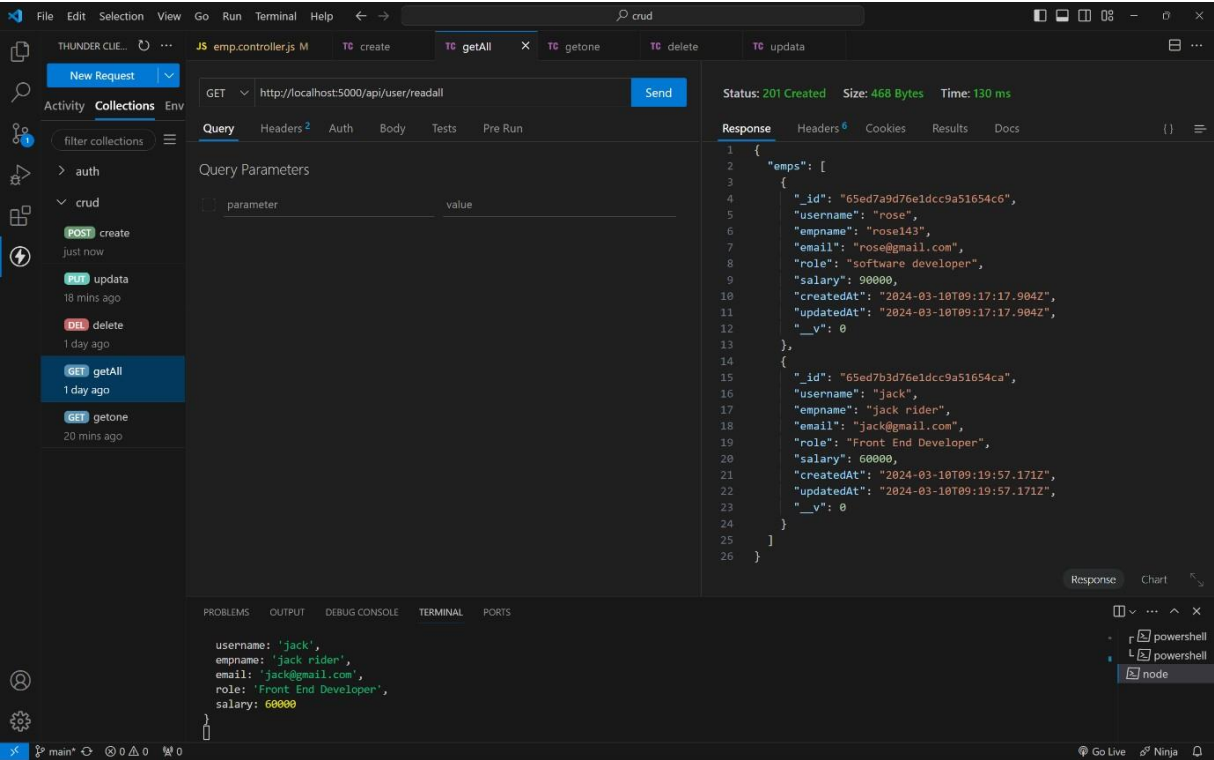
CREATING USER WITH EXISTING USERNAEM :



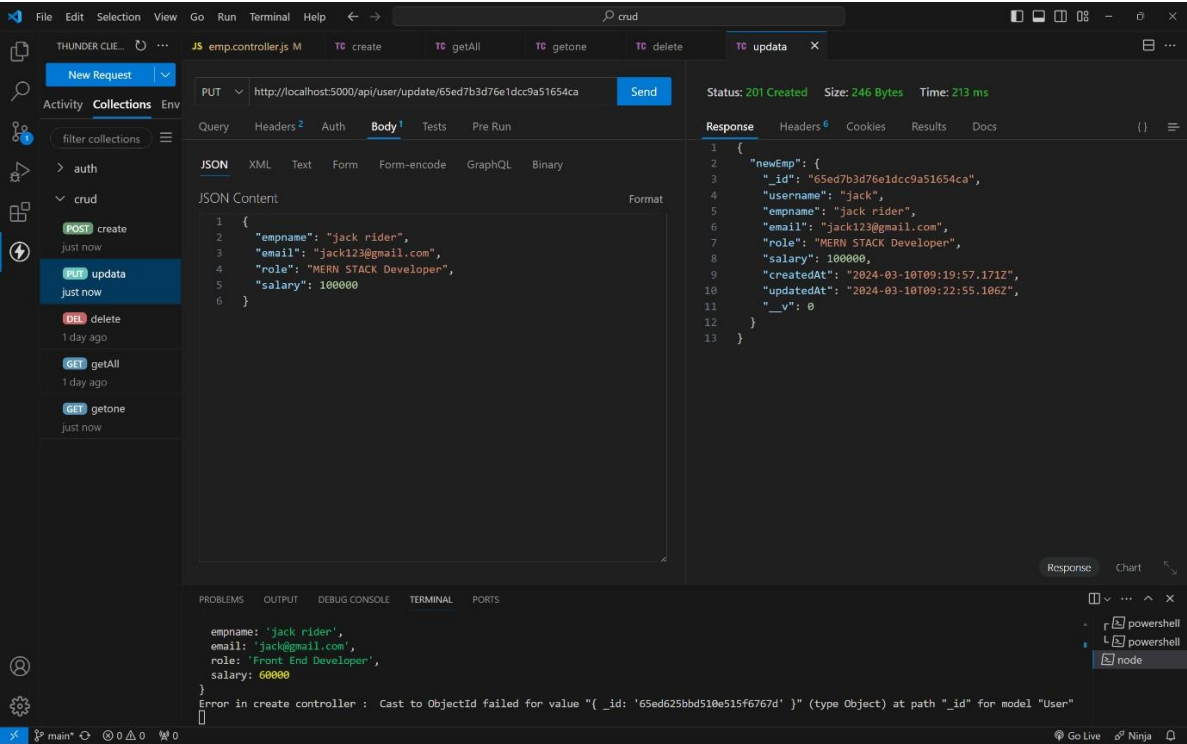
READONE :



READ ALL :



UPDATE :



DELETE :

The screenshot displays the Thunder Client interface with a DELETE request configured and executed. The request is sent to the URL `http://localhost:5000/api/user/remove/65ed7b3d76e1dcc9a51654ca`. The response is a 201 Created status with a size of 68 Bytes and a time of 111 ms. The response body is a JSON object: `{ "id": "65ed7b3d76e1dcc9a51654ca", "message": "deleted successfully.." }`.

Request Details:

- Method: DELETE
- URL: `http://localhost:5000/api/user/remove/65ed7b3d76e1dcc9a51654ca`
- Status: 201 Created
- Size: 68 Bytes
- Time: 111 ms

Response Details:

```
1 {
2   "id": "65ed7b3d76e1dcc9a51654ca",
3   "message": "deleted successfully.."
4 }
```

Terminal Output:

```
Node.js v20.11.0
[nodemon] app crashed - waiting for file changes before starting...
[nodemon] restarting due to changes...
[nodemon] starting 'node api/index.js'
Server is running on PORT : 5000
DB connected successfully
```