

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

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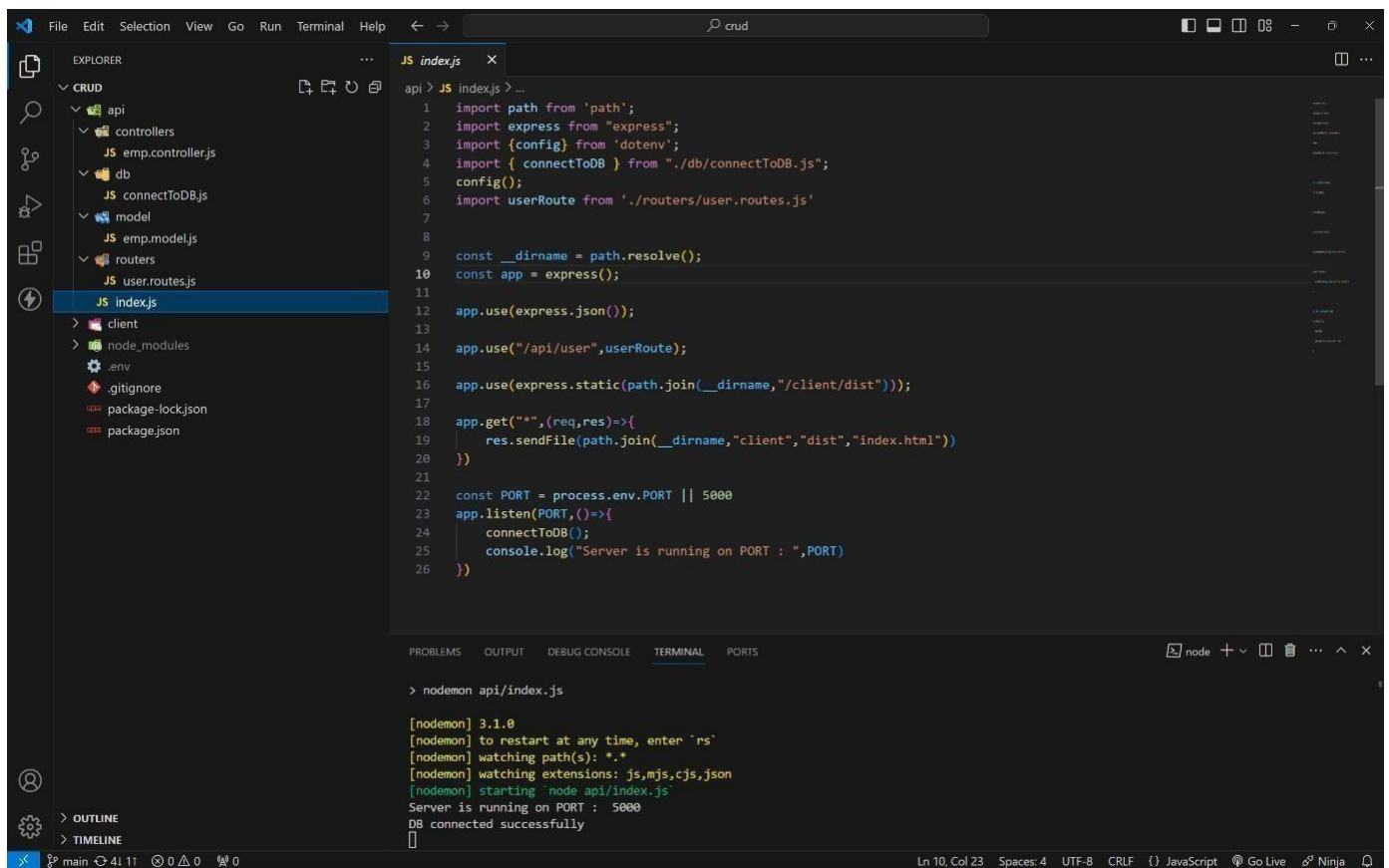
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source code :

index.js file :



The screenshot displays the 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 window shows the content of 'index.js', which is a Node.js application using Express.js. The code imports necessary modules, connects to a MongoDB database, and sets up routes for API endpoints and static file serving. The terminal at the bottom shows the command 'nodemon api/index.js' being executed, with output indicating that the server is running on port 5000 and the database connection is successful.

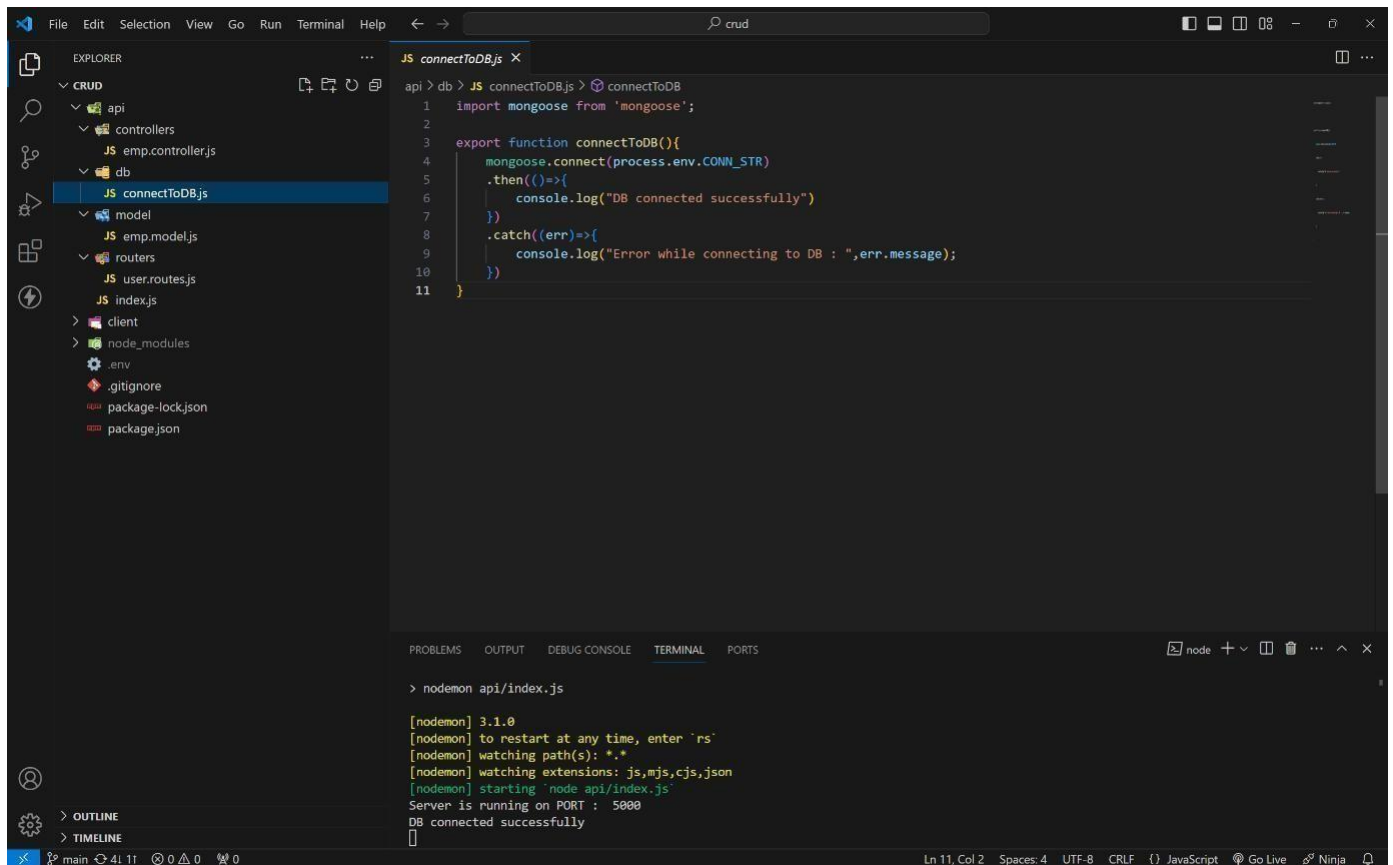
```
api > JS index.js > ...
1  import path from 'path';
2  import express from "express";
3  import {config} from 'dotenv';
4  import { connectToDB } from "../db/connectToDB.js";
5  config();
6  import userRoute from './routes/user.routes.js'
7
8
9  const __dirname = path.resolve();
10 const app = express();
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 })
```

node + v

> 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 :



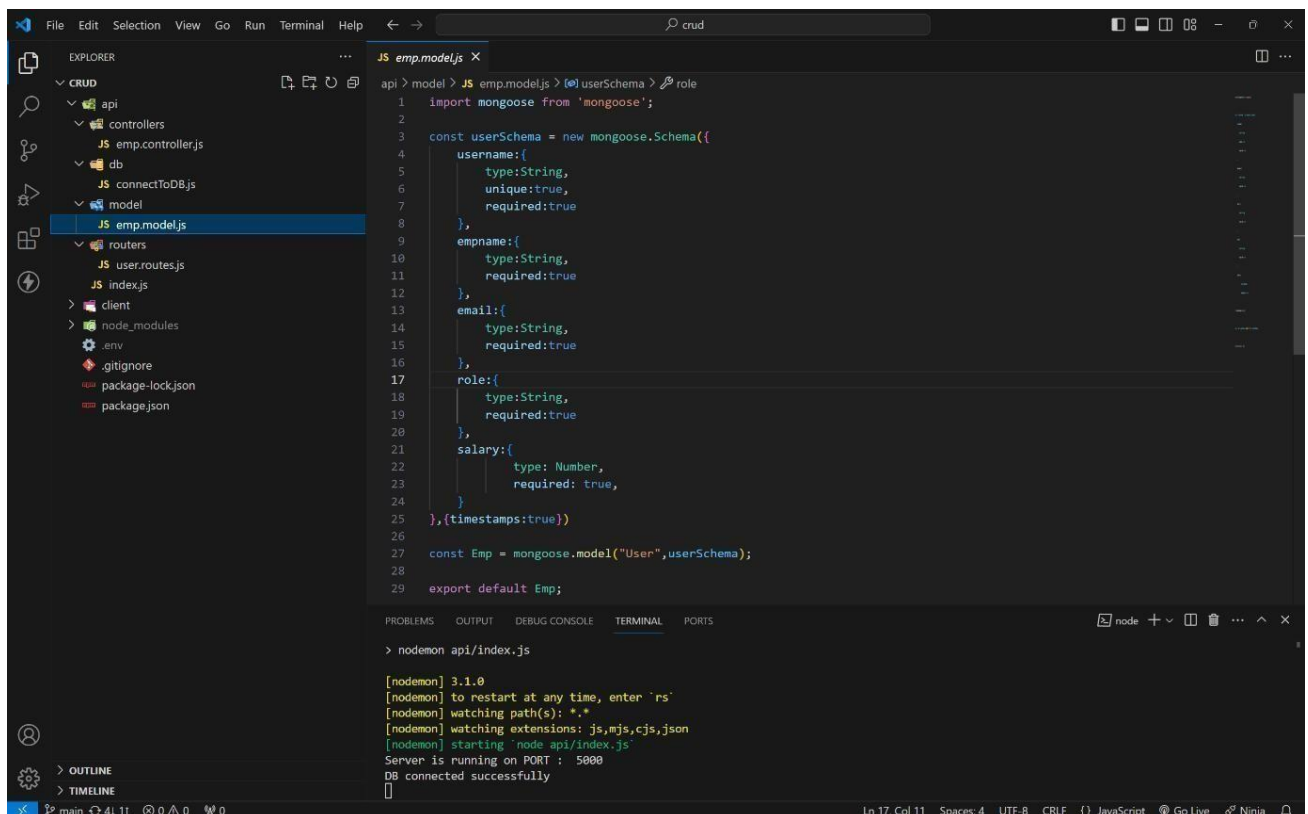
The screenshot shows the VS Code editor with the file explorer on the left. The file explorer shows a project structure with folders like 'api', 'controllers', 'db', 'model', 'routers', 'user.routes.js', 'index.js', 'client', 'node_modules', '.env', '.gitignore', 'package-lock.json', and 'package.json'. The file 'connectToDB.js' is selected in the 'db' folder. The editor displays the following code:

```
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 }
```

The terminal at the bottom shows the command 'nodemon api/index.js' and the output:

```
[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 :



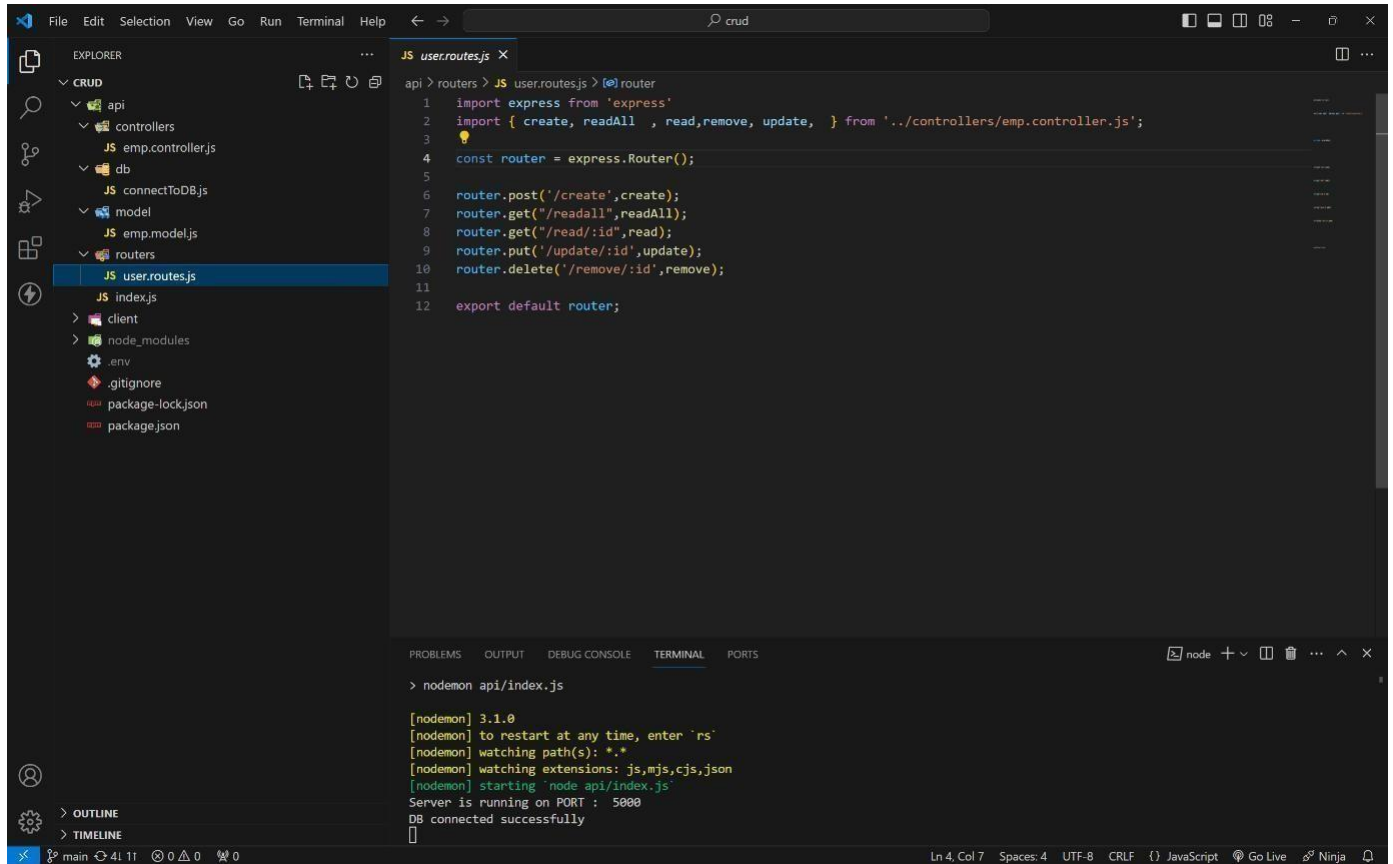
The screenshot shows the VS Code editor with the file explorer on the left. The file explorer shows a project structure with folders like 'api', 'controllers', 'db', 'model', 'routers', 'user.routes.js', 'index.js', 'client', 'node_modules', '.env', '.gitignore', 'package-lock.json', and 'package.json'. The file 'emp.model.js' is selected in the 'model' folder. The editor displays the following code:

```
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;
```

The terminal at the bottom shows the command 'nodemon api/index.js' and the output:

```
[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:



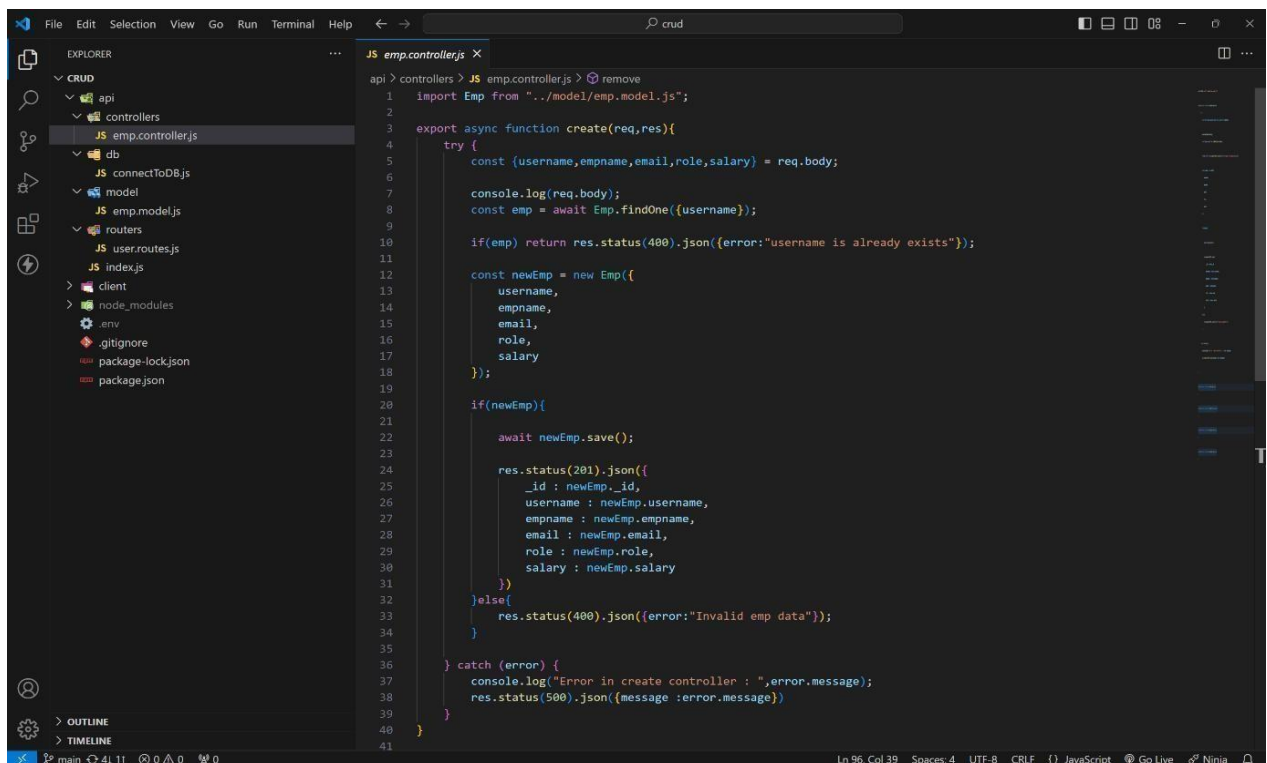
The screenshot shows the VS Code editor with the file explorer on the left. The file explorer shows a project structure with a 'crud' folder containing 'api', 'controllers', 'db', 'model', 'routes', and 'user.routes.js'. The 'user.routes.js' file is selected and its content is displayed in the editor. The terminal at the bottom shows the command 'nodemon api/index.js' and the output of the application running on port 5000.

```
api > routes > 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
```

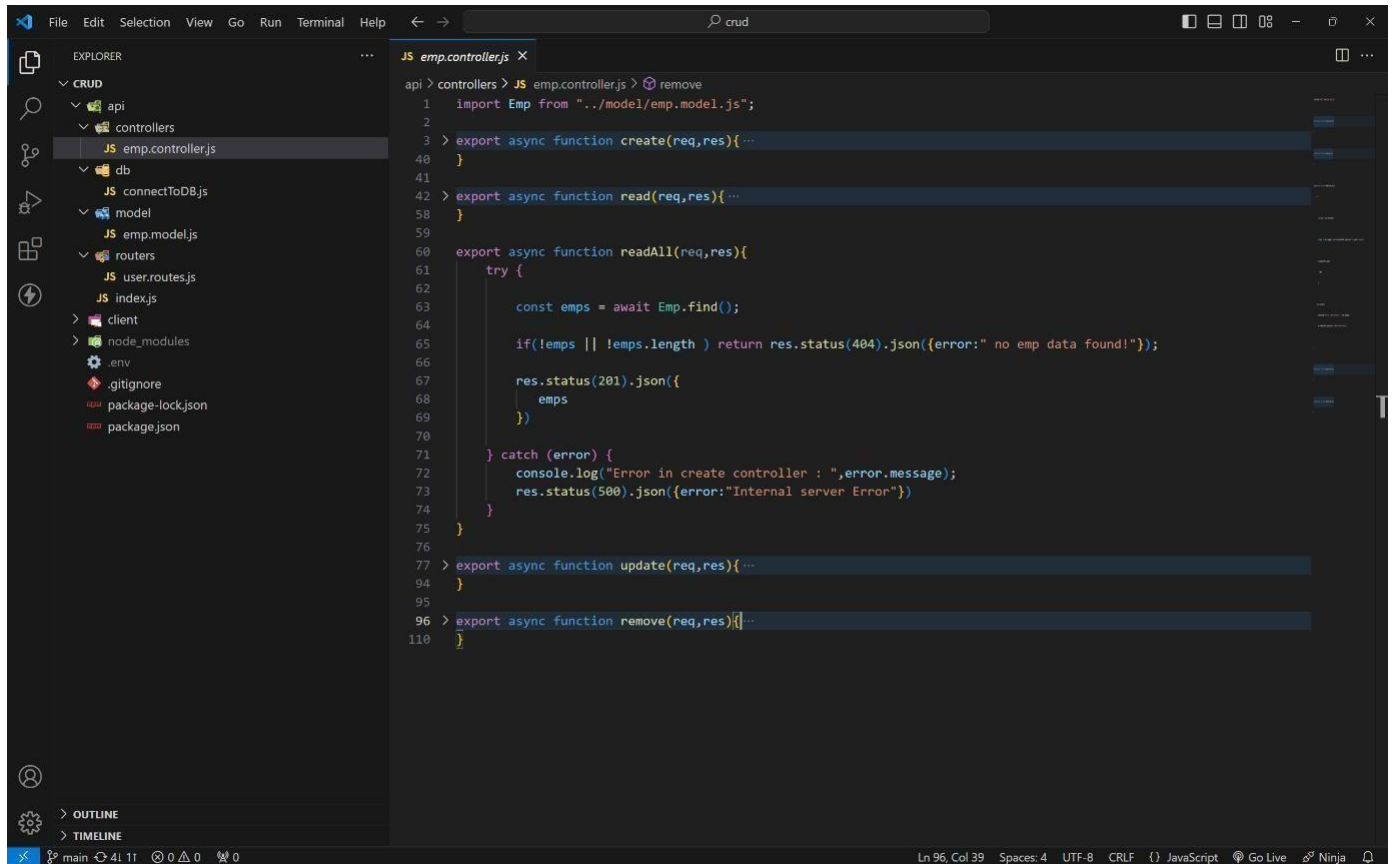
CONTROLLER S : CREATE



The screenshot shows the VS Code editor with the file explorer on the left. The file explorer shows a project structure with a 'crud' folder containing 'api', 'controllers', 'db', 'model', 'routes', and 'user.routes.js'. The 'emp.controller.js' file is selected and its content is displayed in the editor. The terminal at the bottom shows the command 'nodemon api/index.js' and the output of the application running on port 5000.

```
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
```

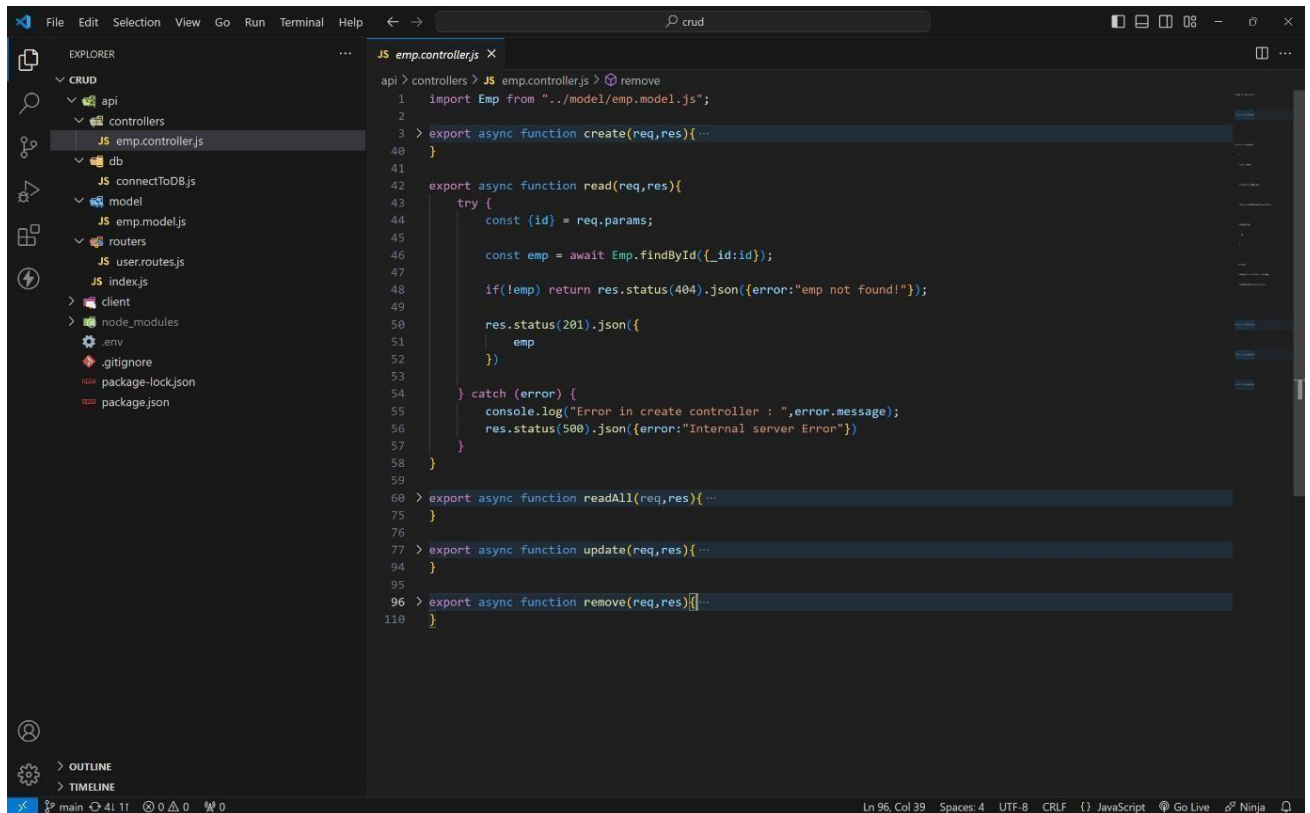
READALL:



The image shows a VS Code editor with the file explorer on the left and the code editor in the center. The file explorer shows a project structure with folders like api, controllers, db, model, routers, and client. The code editor shows the file emp.controller.js with the following 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){
61   try {
62
63     const emps = await Emp.find();
64
65     if(!emps || !emps.length ) return res.status(404).json({error:" no emp data found!"});
66
67     res.status(201).json({
68       emps
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 }
```

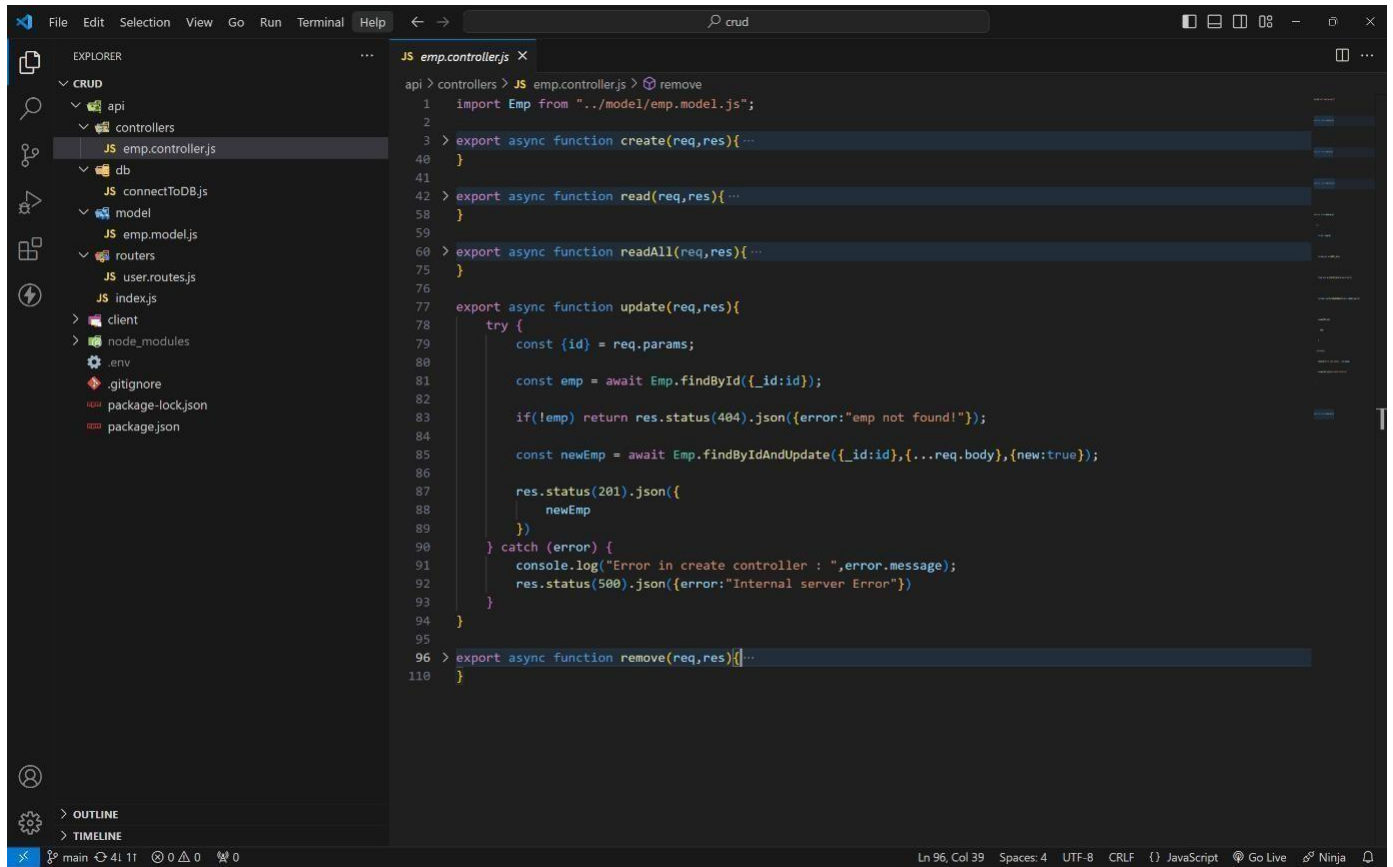
READONE :



The image shows a VS Code editor with the file explorer on the left and the code editor in the center. The file explorer shows a project structure with folders like api, controllers, db, model, routers, and client. The code editor shows the file emp.controller.js with the following 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){
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   } catch (error) {
54     console.log("Error in create controller : ",error.message);
55     res.status(500).json({error:"Internal server Error"})
56   }
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 :



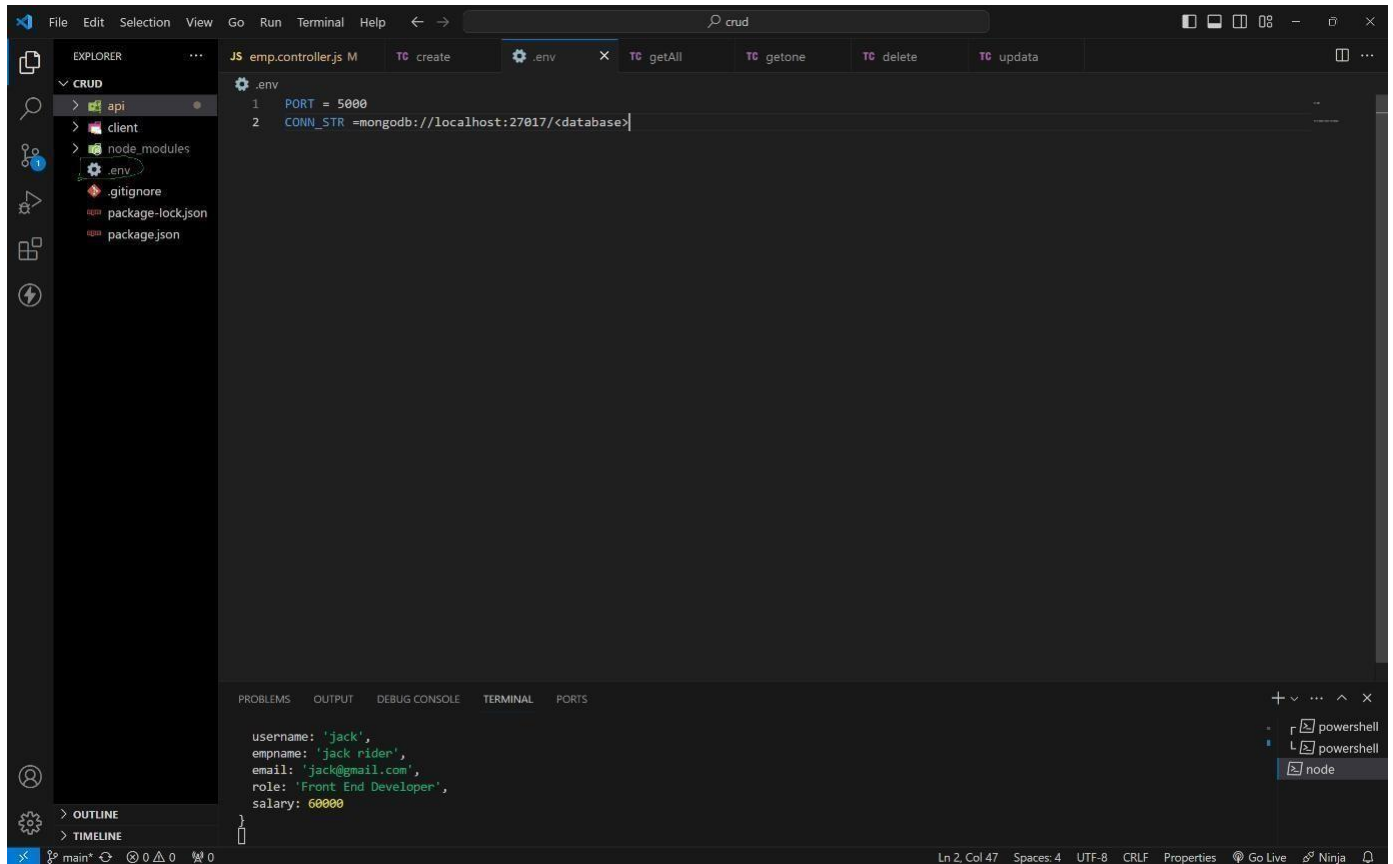
The screenshot shows a VS Code editor window with the file explorer on the left and the code editor in the center. The file explorer shows a project structure with a 'crud' folder containing 'api', 'controllers', 'db', 'model', 'routers', and 'user.routes.js'. The 'api' folder contains 'emp.controller.js'. The code editor shows the implementation of the 'update' function in 'emp.controller.js'.

```
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 }
```

The status bar at the bottom shows the file is on the 'main' branch, with 41 lines, 11 characters, 0 errors, 0 warnings, and 0 suggestions. The editor is using UTF-8 encoding, CRLF line endings, and is in JavaScript mode.

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 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 :

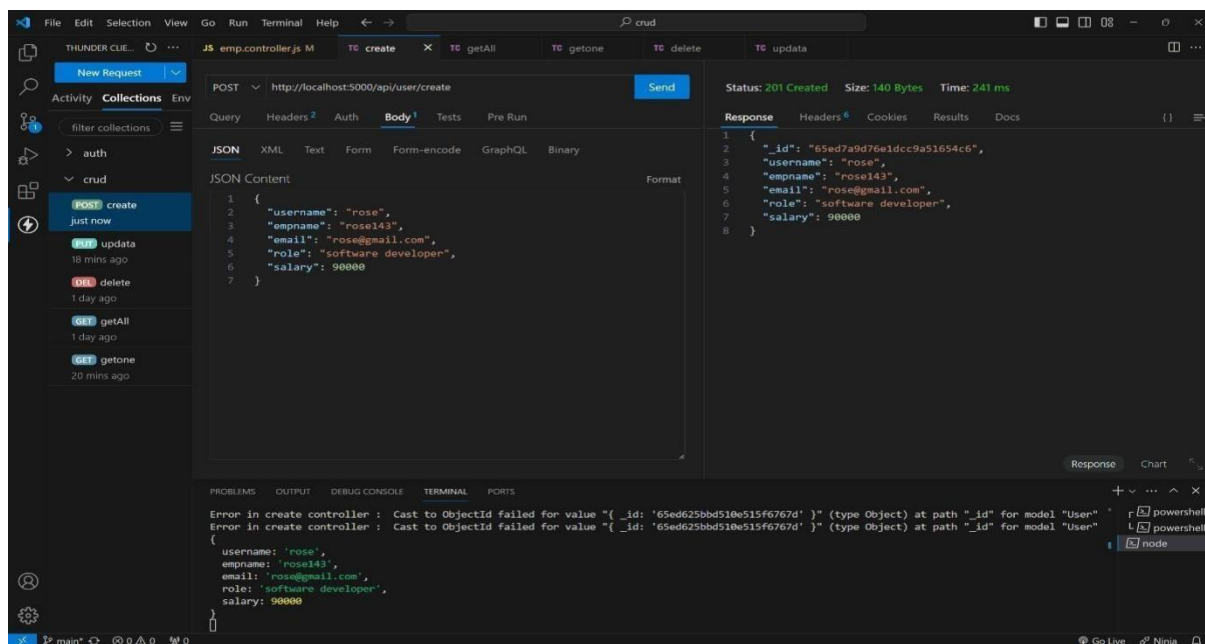
1 . This route is used to delete specific user by passing that user id as a param. method as delete
url as

`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 USERNAME :

The screenshot shows the Thunder Client interface. The left sidebar displays a collection named 'crud' with several requests: 'create' (POST, 1 min ago), 'updata' (PUT, 18 mins ago), 'delete' (DELETE, 1 day ago), 'getAll' (GET, 1 day ago), and 'getone' (GET, 20 mins ago). The main panel shows a POST request to 'http://localhost:5000/api/user/create'. The 'Body' tab is selected, displaying a JSON object:

```
{  "username": "rose",  "empname": "rose143",  "email": "rose@gmail.com",  "role": "software developer",  "salary": 90000}
```

. The 'Response' tab shows a 400 Bad Request status with the message:

```
{  "error": "username is already exists"}
```

. The bottom terminal pane shows the JSON body of the request.

READONE :

The screenshot shows the Thunder Client interface. The left sidebar displays the same 'crud' collection. The main panel shows a GET request to 'http://localhost:5000/api/user/read/65ed7b3d76e1dcc9a51654ca'. The 'Response' tab shows a 201 Created status with the following JSON object:

```
{  "emp": {    "_id": "65ed7b3d76e1dcc9a51654ca",    "username": "jack",    "empname": "jack rider",    "email": "jack@gmail.com",    "role": "Front End Developer",    "salary": 60000,    "createdAt": "2024-03-10T09:19:57.171Z",    "updatedAt": "2024-03-10T09:19:57.171Z",    "__v": 0  }}}
```

. The bottom terminal pane shows the JSON body of the response.

READ ALL :

Thunder Client interface showing a GET request to `http://localhost:5000/api/user/readall`. The response is a JSON array of two employee objects. The terminal displays the raw JSON response.

```
GET http://localhost:5000/api/user/readall
```

Status: 201 Created Size: 468 Bytes Time: 130 ms

Query Parameters

parameter	value
-----------	-------

Response

```
1 {
2   "emps": [
3     {
4       "_id": "65ed7a9d76e1dcc9a51654c6",
5       "username": "rose",
6       "empname": "rose143",
7       "email": "rose@gmail.com",
8       "role": "software developer",
9       "salary": 90000,
10      "createdAt": "2024-03-10T09:17:17.904Z",
11      "updatedAt": "2024-03-10T09:17:17.904Z",
12      "_v": 0
13    },
14    {
15      "_id": "65ed7b3d76e1dcc9a51654ca",
16      "username": "jack",
17      "empname": "jack rider",
18      "email": "jack@gmail.com",
19      "role": "Front End Developer",
20      "salary": 60000,
21      "createdAt": "2024-03-10T09:19:57.171Z",
22      "updatedAt": "2024-03-10T09:19:57.171Z",
23      "_v": 0
24    }
25  ]
26 }
```

Terminal Output:

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

UPDATE :

Thunder Client interface showing a PUT request to `http://localhost:5000/api/user/update/65ed7b3d76e1dcc9a51654ca`. The response is a JSON object for the updated employee. The terminal displays an error message.

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

Status: 201 Created Size: 246 Bytes Time: 213 ms

JSON Content

```
1 {
2   "empname": "jack rider",
3   "email": "jack123@gmail.com",
4   "role": "MERN STACK Developer",
5   "salary": 100000
6 }
```

Response

```
1 {
2   "newEmp": {
3     "_id": "65ed7b3d76e1dcc9a51654ca",
4     "username": "jack",
5     "empname": "jack rider",
6     "email": "jack123@gmail.com",
7     "role": "MERN STACK Developer",
8     "salary": 100000,
9     "createdAt": "2024-03-10T09:19:57.171Z",
10    "updatedAt": "2024-03-10T09:22:55.106Z",
11    "_v": 0
12  }
13 }
```

Terminal Output:

```
empname: 'jack rider',
email: 'jack@gmail.com',
role: 'Front End Developer',
salary: 60000
}
Error in create controller : Cast to ObjectId failed for value "{ _id: '65ed625bbd510e515f6767d' }" (type Object) at path "_id" for model "User"
```

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 status is `201 Created`, with a size of `68 Bytes` and a time of `111 ms`. The response body is a JSON object: `{ "id": "65ed7b3d76e1dcc9a51654ca", "message": "deleted successfully.." }`.

The left sidebar shows a collection named `crud` with several requests: `create` (POST, 5 mins ago), `update` (PUT, 2 mins ago), `delete` (DEL, just now), `getAll` (GET, 1 day ago), and `getone` (GET, 3 mins ago). The `delete` request is currently selected.

The bottom terminal window shows the following 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
```