

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

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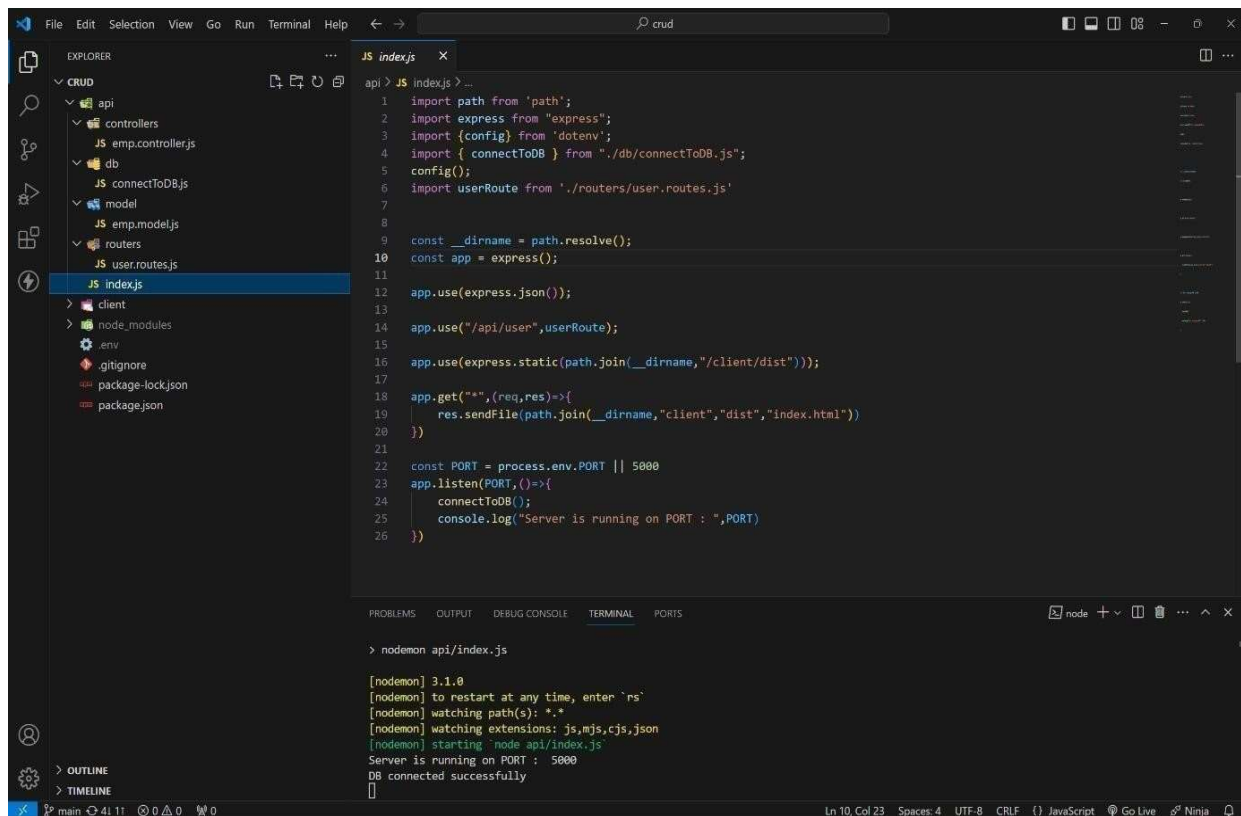
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**College Name:** Chebrolu Engineering College

**Source Code:**

**index.js file :**



The screenshot shows a VS Code editor window with a project structure on the left and a code editor on the right. The project structure includes a 'crud' folder with subfolders 'api', 'controllers', 'db', 'model', 'routers', and 'client'. The 'api' folder contains 'index.js', 'connectToDB.js', 'emp.model.js', and 'emp.controller.js'. The 'routers' folder contains 'user.routes.js'. The 'client' folder contains 'dist'. The 'index.js' file is selected in the Explorer. The code in the editor is as follows:

```
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 './routers/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 })
```

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

```
> 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 on the left displaying the project structure. The file `JS connectToDB.js` is selected. The main editor shows the following code:

```
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 }
```

The Terminal at the bottom shows the command `> nodemon api/index.js` and the following 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:

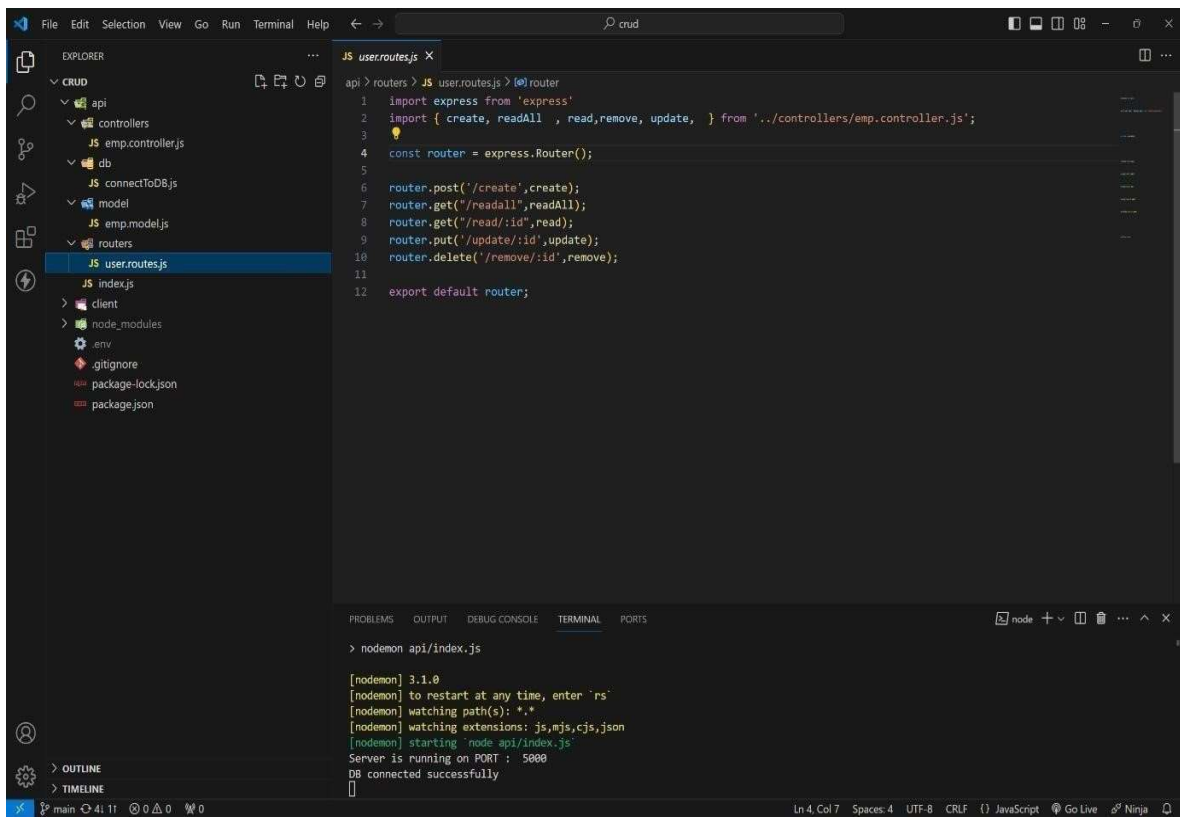
The screenshot shows the VS Code interface with the Explorer on the left displaying the project structure. The file `JS emp.model.js` is selected. The main editor shows the following code:

```
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;
```

The Terminal at the bottom shows the command `> nodemon api/index.js` and the following 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:



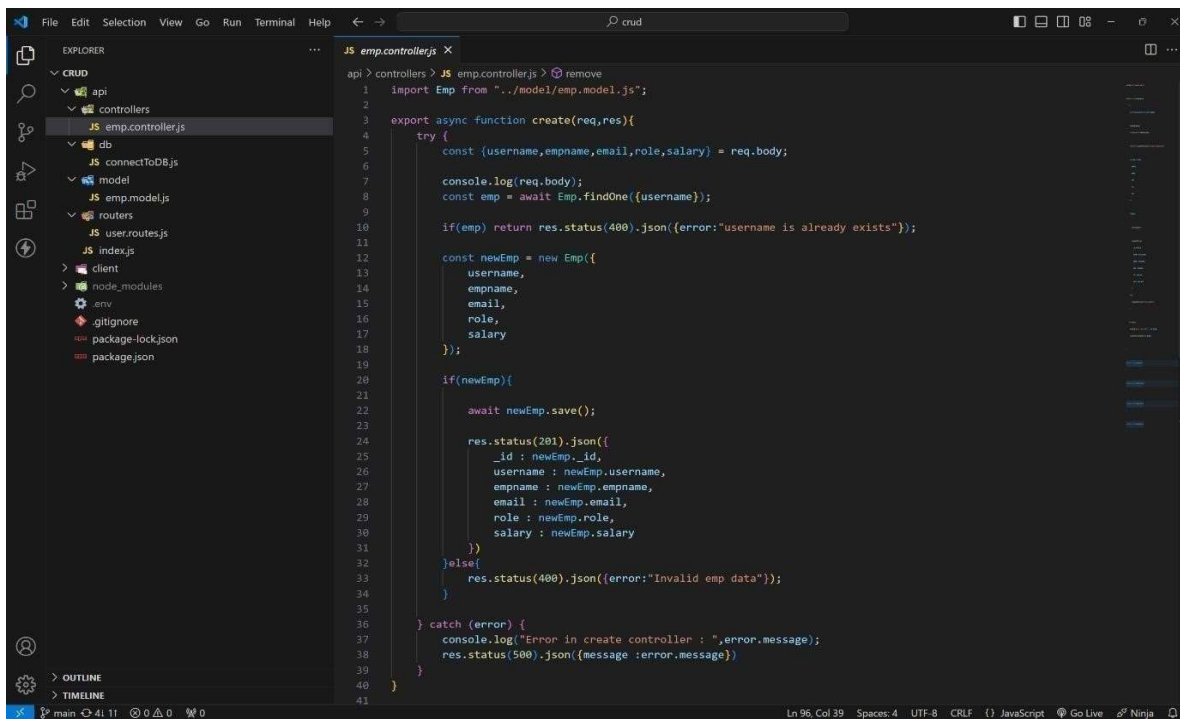
The screenshot shows a VS Code editor with a project structure on the left. The 'EXPLORER' sidebar shows a folder named 'crud' containing subfolders 'api', 'controllers', 'db', 'model', 'routers', and 'client'. The 'api' folder is expanded, showing 'user.routes.js' selected. The main editor displays the content of 'user.routes.js', which is a JavaScript file for setting up an Express.js router. The code includes imports for 'express', 'create', 'readAll', 'read', 'update', and 'remove' from '../controllers/emp.controller.js'. It then creates an Express router and defines routes for POST /create, GET /readall, GET /read/:id, PUT /update/:id, and DELETE /remove/:id. The router is exported as the default export. Below the editor, the 'TERMINAL' tab is active, showing the command 'nodemon api/index.js' and its output. The output indicates that nodemon 3.1.0 is running, watching the 'api' directory, and the server is running on port 5000. The status bar at the bottom shows 'Ln 4, Col 7' and 'Spaces: 4'.

```
api > routers > JS user.routes.js > @router
1 import express from 'express'
2 import { create, readAll, read, update, remove } 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
```

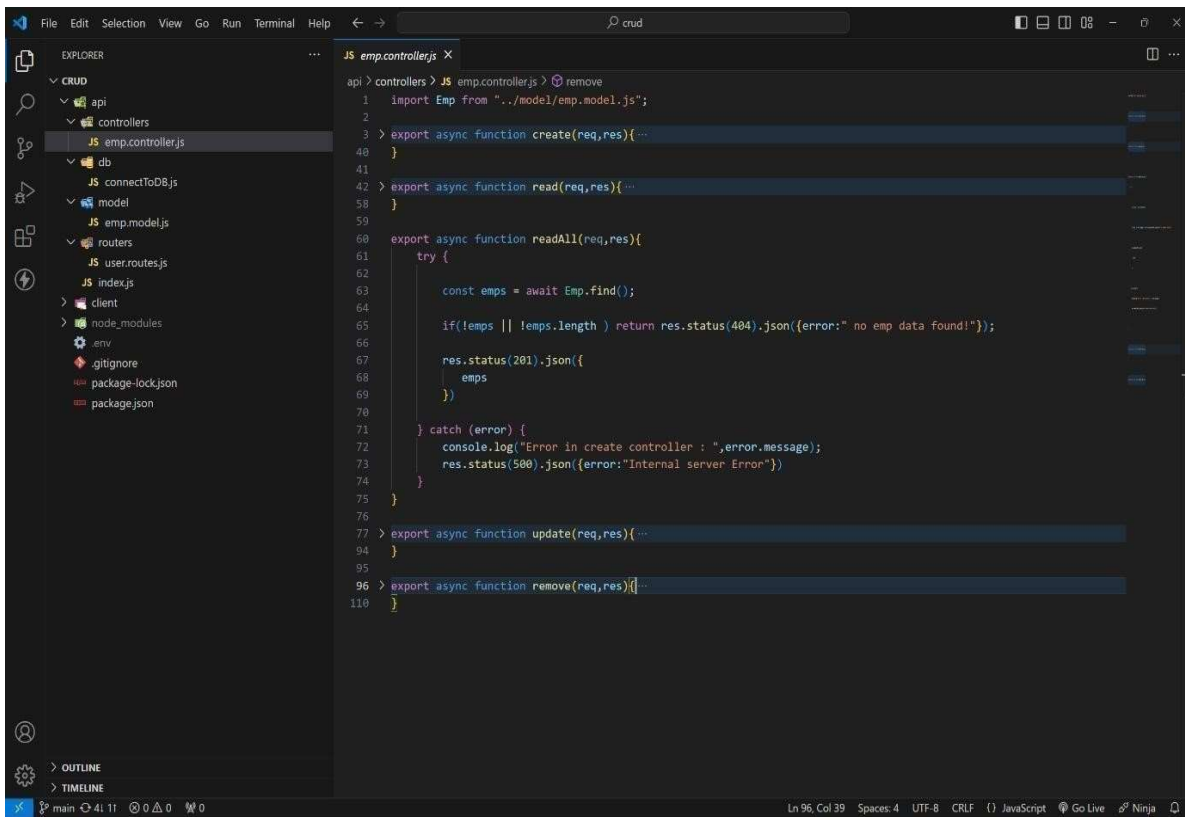
## CONTROLLERS: CREATE:



The screenshot shows a VS Code editor with the same project structure as the previous image. The 'EXPLORER' sidebar shows the 'controllers' folder expanded, with 'emp.controller.js' selected. The main editor displays the content of 'emp.controller.js', which is a JavaScript file for handling employee-related operations. It includes an import for 'Emp' from '../model/emp.model.js'. It then defines an asynchronous function 'create' that takes 'req' and 'res' as arguments. The function attempts to create a new employee by calling 'Emp.findOne' to check if a user with the same username already exists. If it does, it returns a 400 status with an error message. If not, it creates a new employee object with fields 'username', 'empname', 'email', 'role', and 'salary', saves it, and returns a 201 status with the new employee's details. The function also includes a catch block for handling errors. The status bar at the bottom shows 'Ln 96, Col 39' and 'Spaces: 4'.

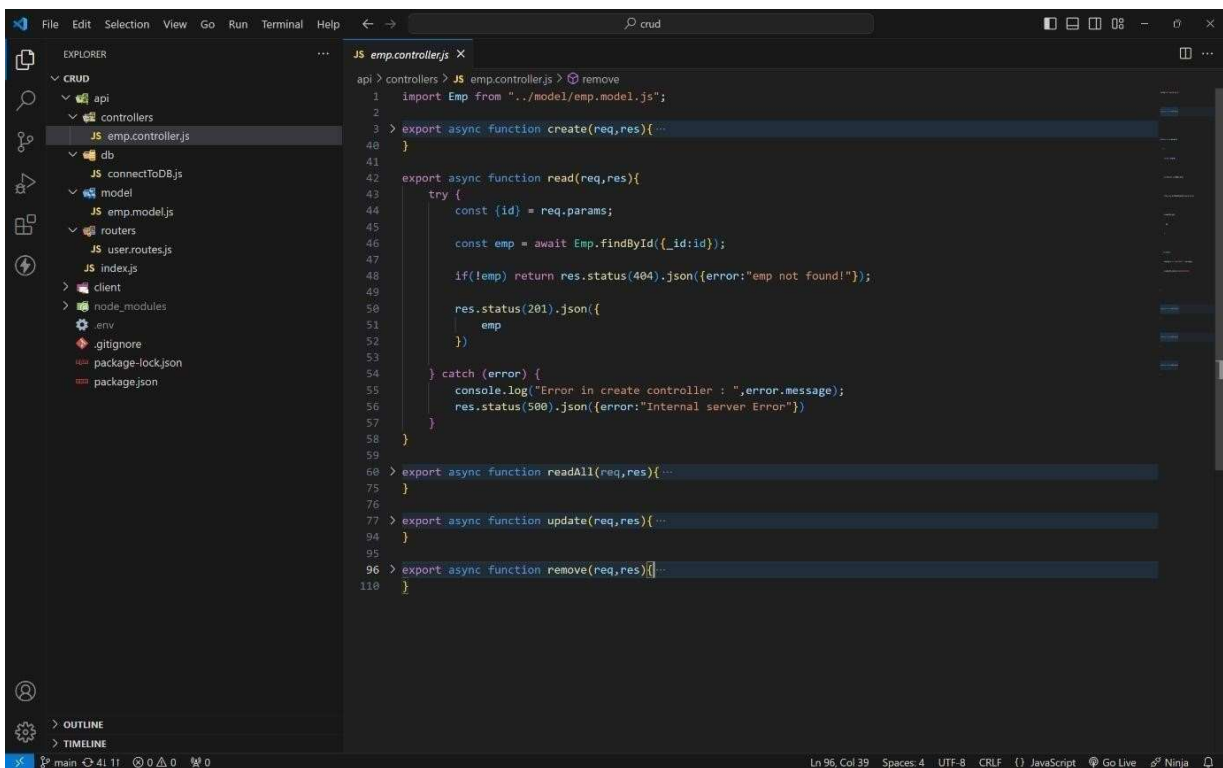
```
api > controllers > JS emp.controller.js > remove
1 import Emp from '../model/emp.model.js';
2
3 export async function create(req,res){
4   try {
5     const {username,empname,email,role,salary} = req.body;
6
7     console.log(req.body);
8     const emp = await Emp.findOne({username});
9
10    if(emp) 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
36  } catch (error) {
37    console.log("Error in create controller : ",error.message);
38    res.status(500).json({message : error.message});
39  }
40 }
41
```

## READALL:



```
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
71   } catch (error) {
72     console.log("Error in create controller : ",error.message);
73     res.status(500).json({error:"Internal server Error"})
74   }
75 }
76
77 > export async function update(req,res){ ...
94 }
95
96 > export async function remove(req,res){ ...
110 }
```

READONE:



```
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:

```
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:

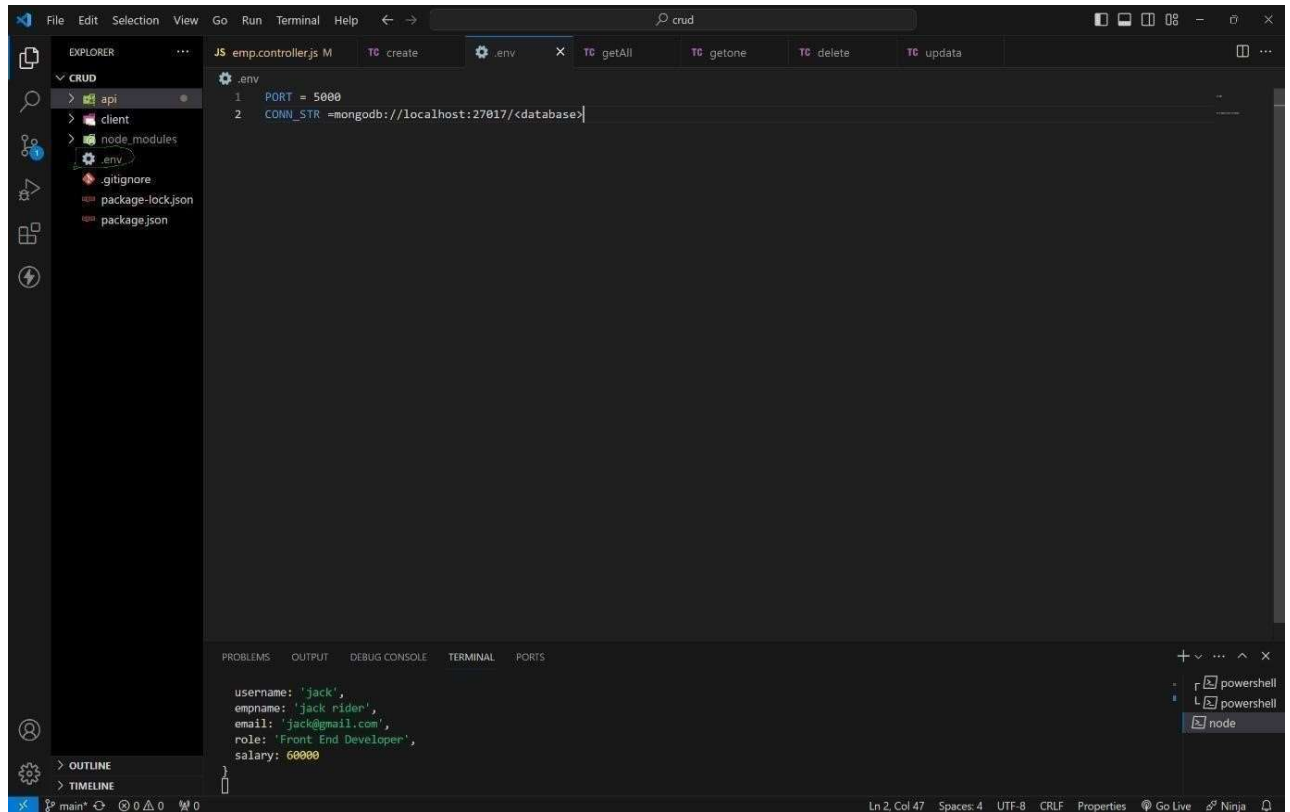
```
api > controllers > JS emp.controller.js > remove
1  import Emp from "../model/emp.model.js";
2
3  > export async function create(req,res){ ...
40 }
41
42 > export async function read(req,res){ ...
58 }
59
60 > export async function readAll(req,res){ ...
75 }
76
77 > export async function update(req,res){ ...
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`

/?retry Writes=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 :**

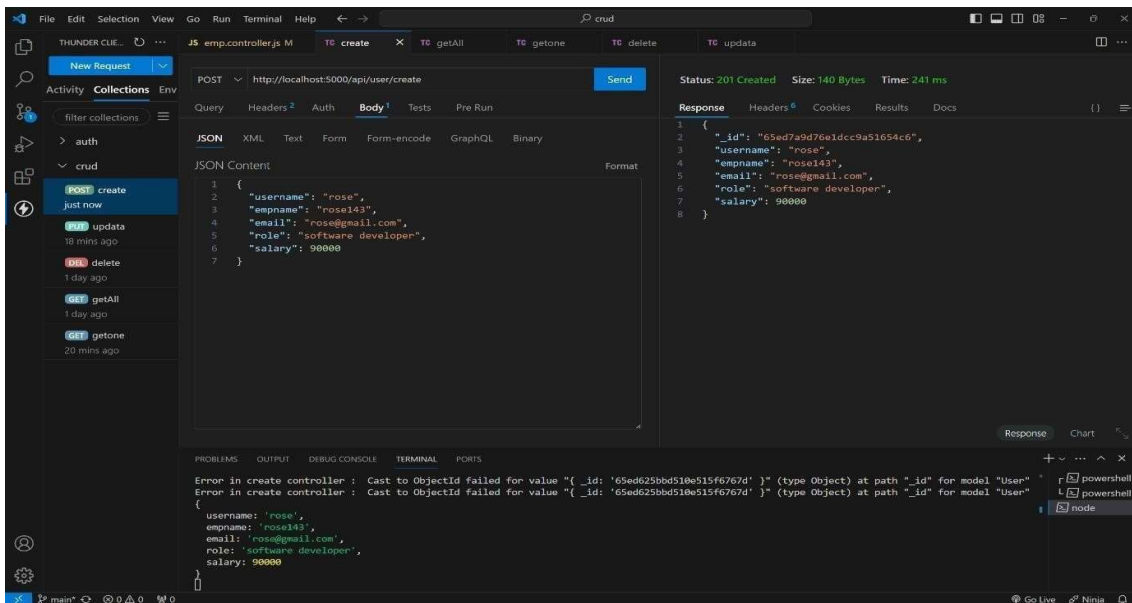
1 . This route is used to delete specific user by passing that user id as a param. method as delete

url as <http://localhost:5000/api/user/delete/65ed7b3d76e1dcc9a51654ca> 2 . After sending you will deleted successfully as response.

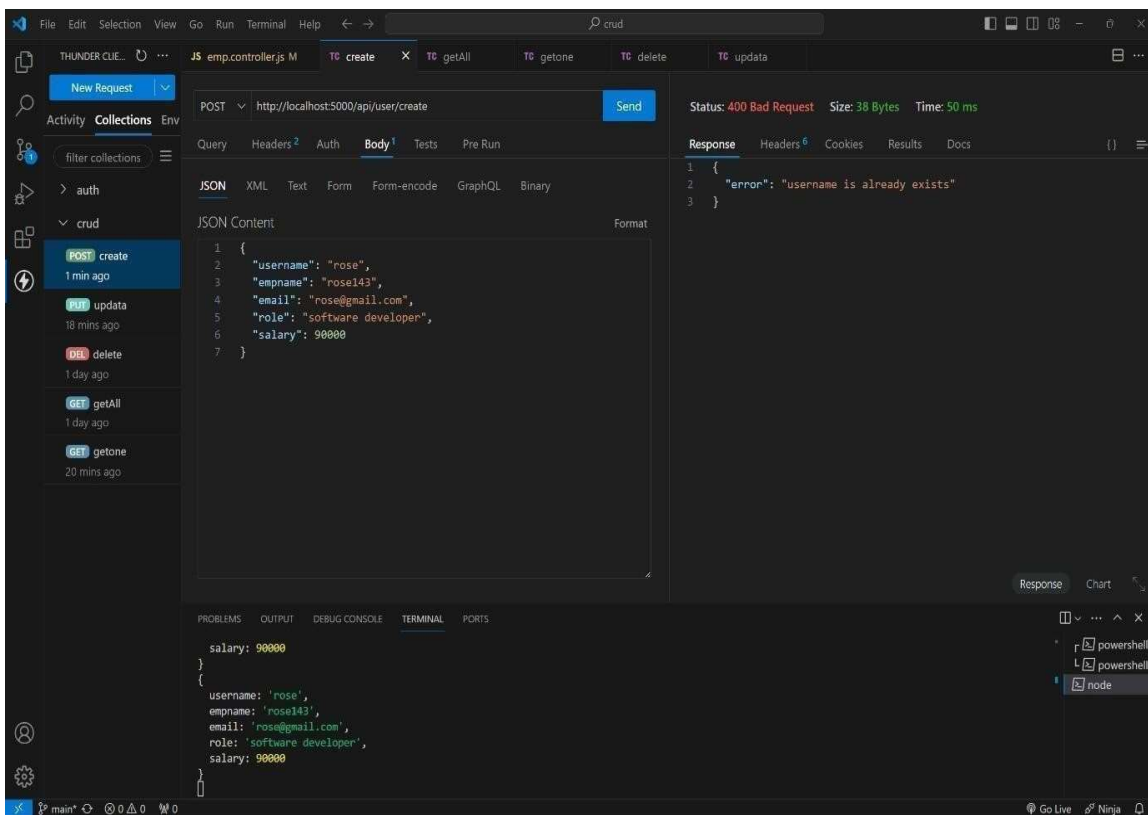
#### **OUTPUT :**

#### **CREATE A NEW USER :**

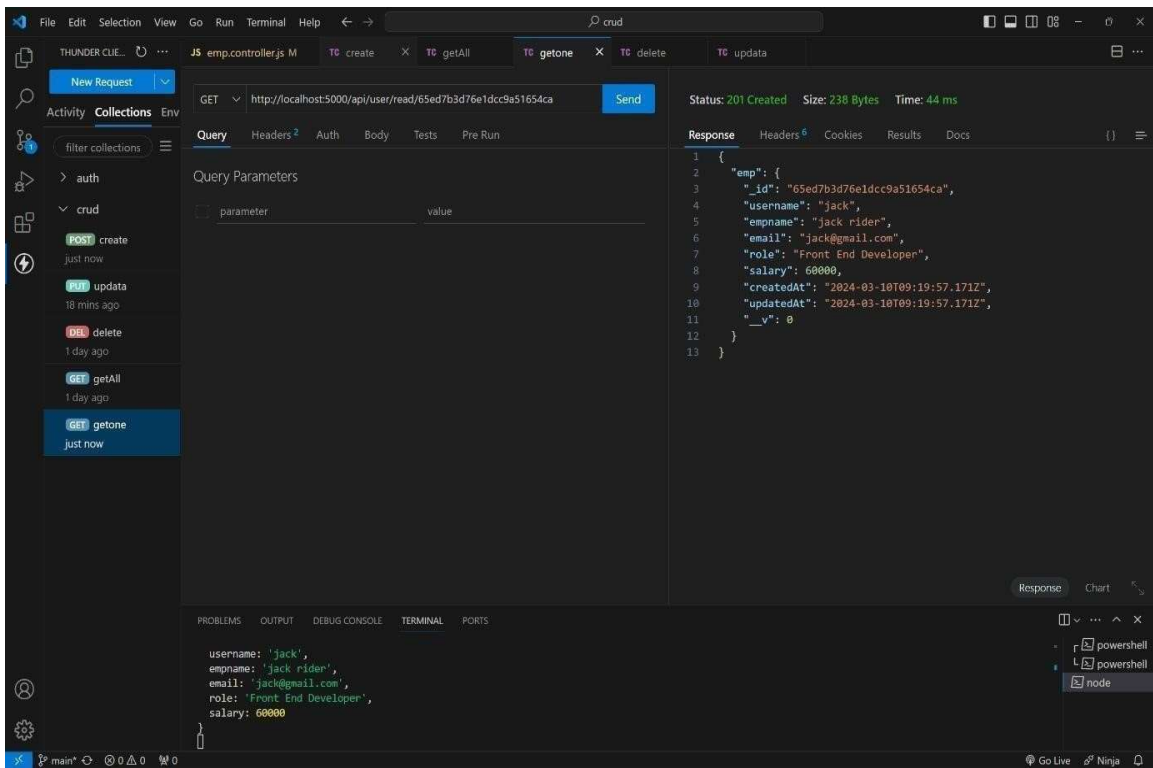




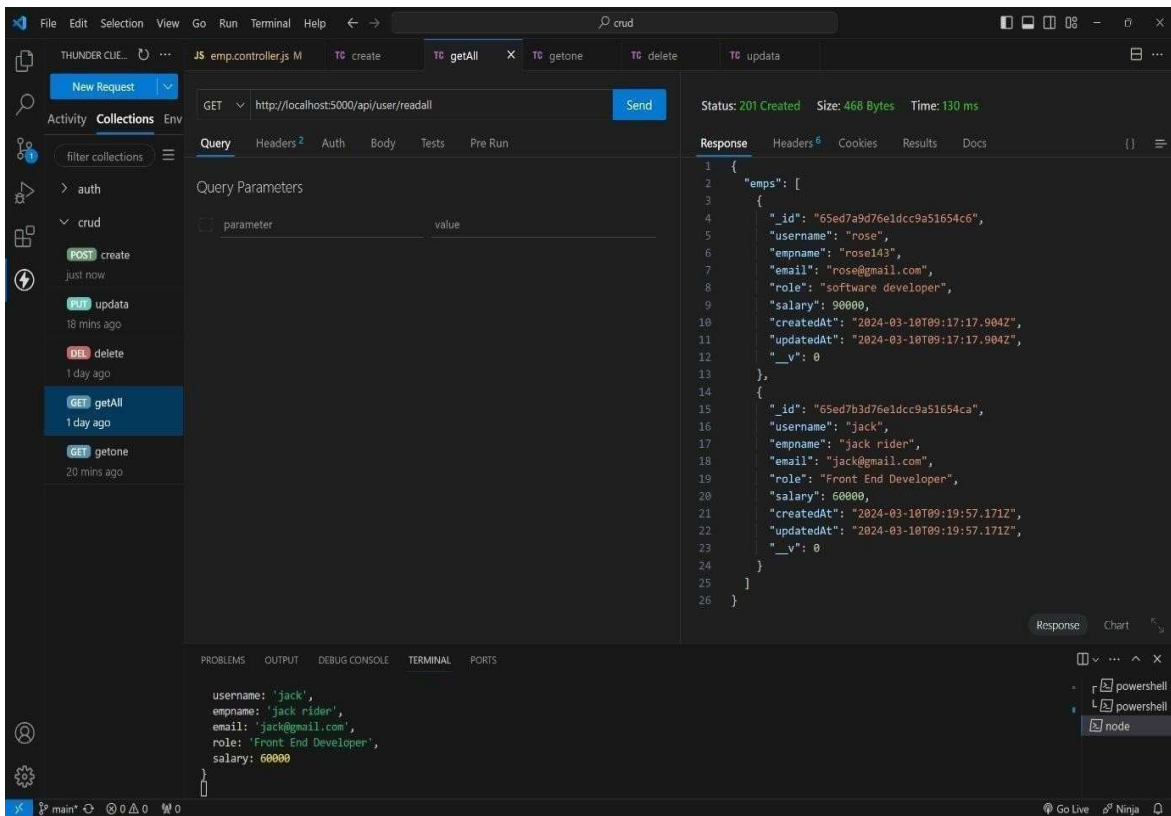
**CREATING USER WITH EXISTING USERNAEM :**



**READONE :**



READ ALL :



UPDATE :

Thunder Client interface showing a PUT request to `http://localhost:5000/api/user/update/65ed7b3d76e1dcc9a51654ca`. The request body is a JSON object:

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

The response is a 201 Created status with the following JSON body:

```
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 }
```

The terminal shows an error in the create controller:

```
empname: 'jack rider',
email: 'jack@gmail.com',
role: 'Front End Developer',
salary: 600000
)
Error in create controller : Cast to ObjectId failed for value "{ _id: '65ed625bbd510e515f6767d' }" (type Object) at path "_id" for model "User"
```

## DELETE :

Thunder Client interface showing a DELETE request to `http://localhost:5000/api/user/remove/65ed7b3d76e1dcc9a51654ca`. The response is a 201 Created status with the following JSON body:

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

The terminal shows the server status:

```
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
```