

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

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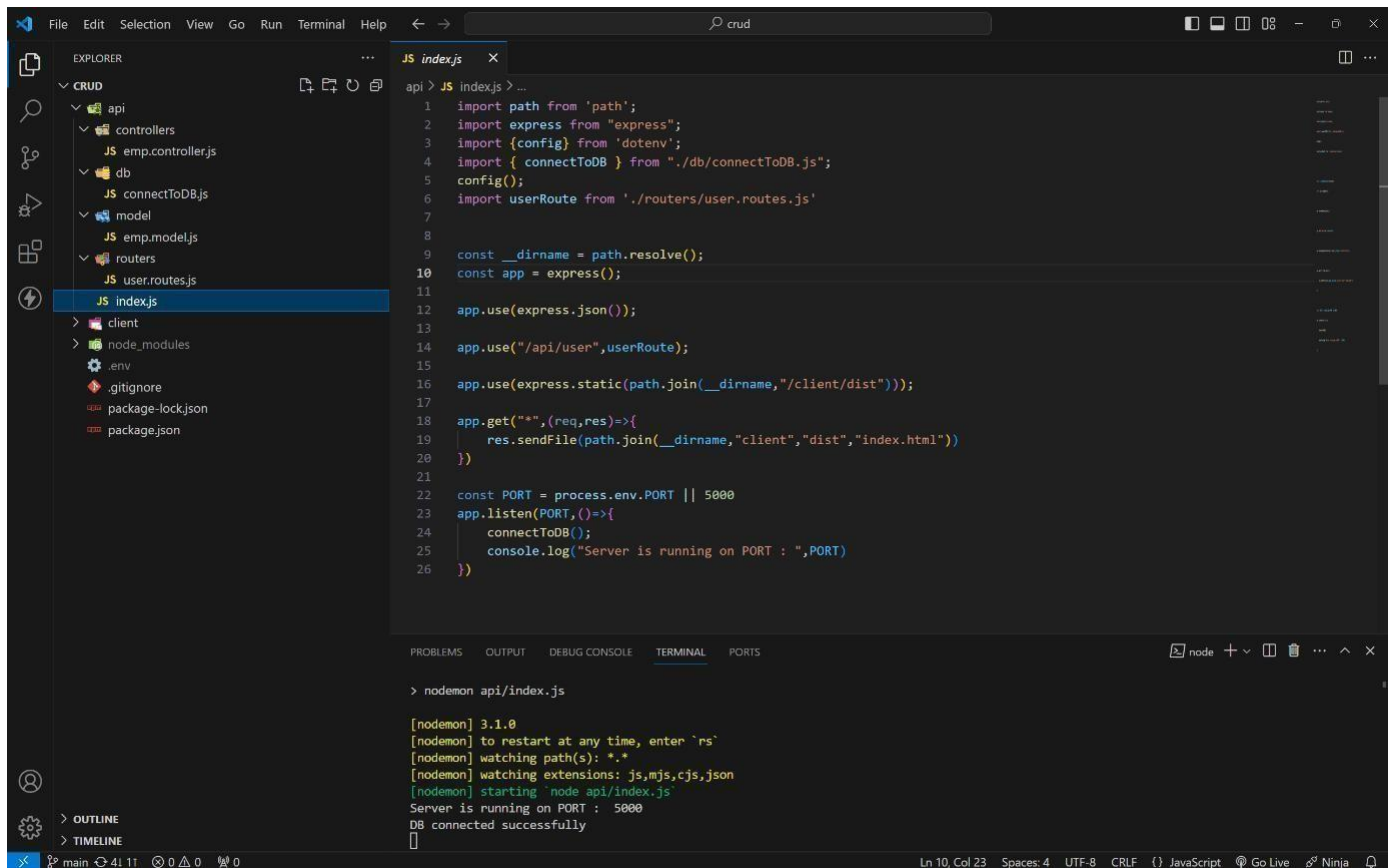
Phone no : 8179094518

Roll NO : 20HU1A0409

College Name: Chebrolu Engineering College

Source Code:

index.js file :



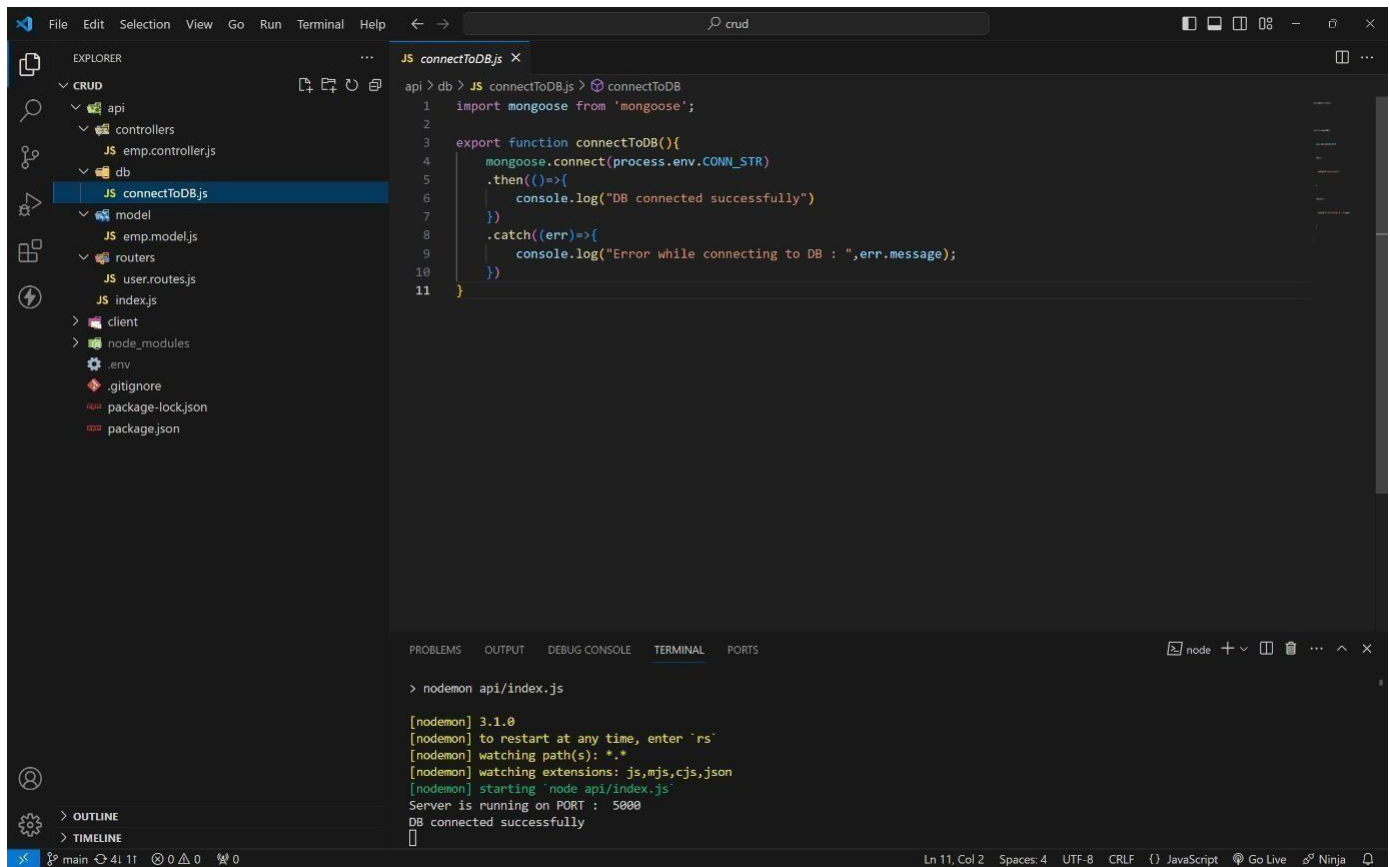
The screenshot shows a VS Code editor window with a project named 'crud'. The Explorer sidebar on the left shows the file structure, with 'api/index.js' selected. The main editor area displays the content of 'index.js', which is a Node.js script using Express.js to create a RESTful API. The script imports necessary modules, configures the app, and sets up routes. 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 connected to MongoDB successfully.

```
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:



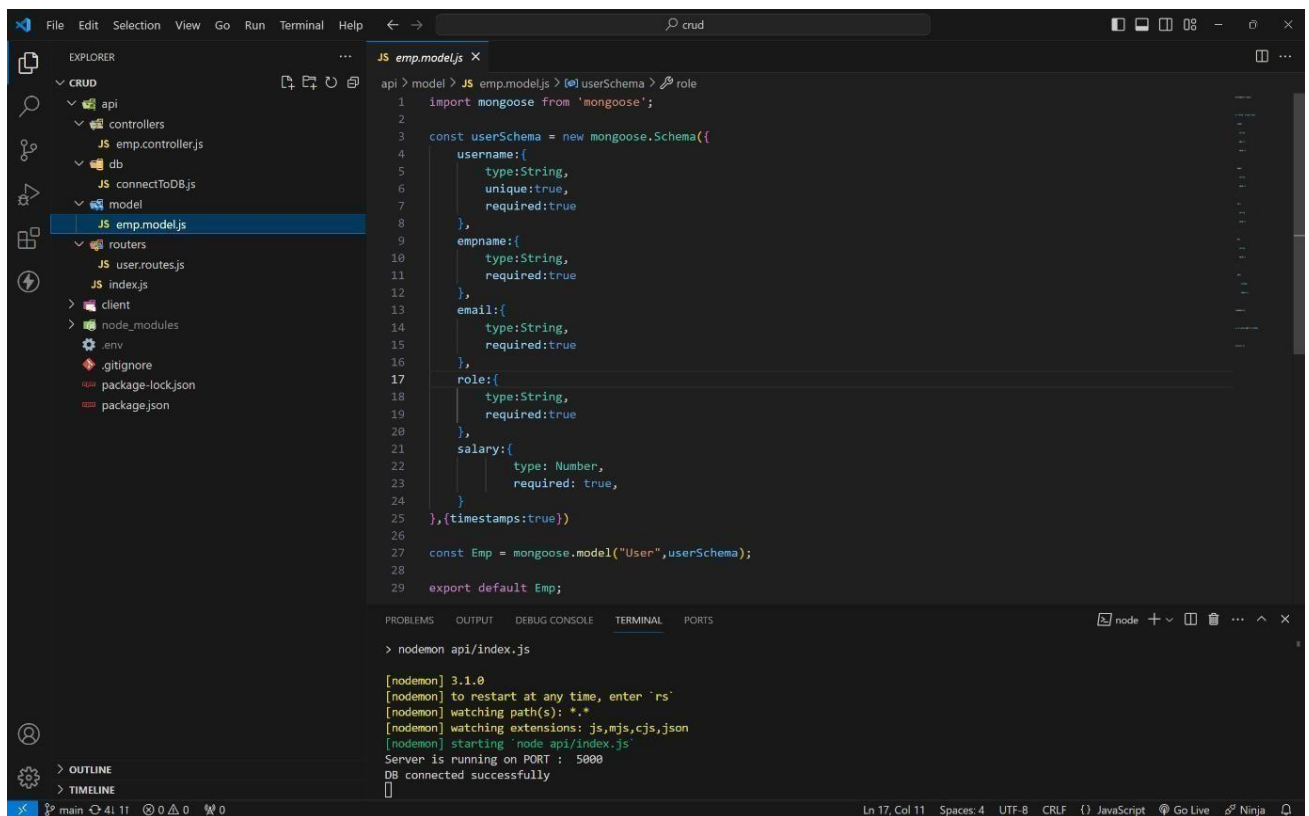
The image shows a VS Code editor window with the Explorer sidebar on the left. The file 'connectToDB.js' is selected under the 'db' folder. The main editor displays the code for 'connectToDB.js'. The terminal at the bottom shows the command 'nodemon api/index.js' and its output, indicating a successful database connection.

```
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:



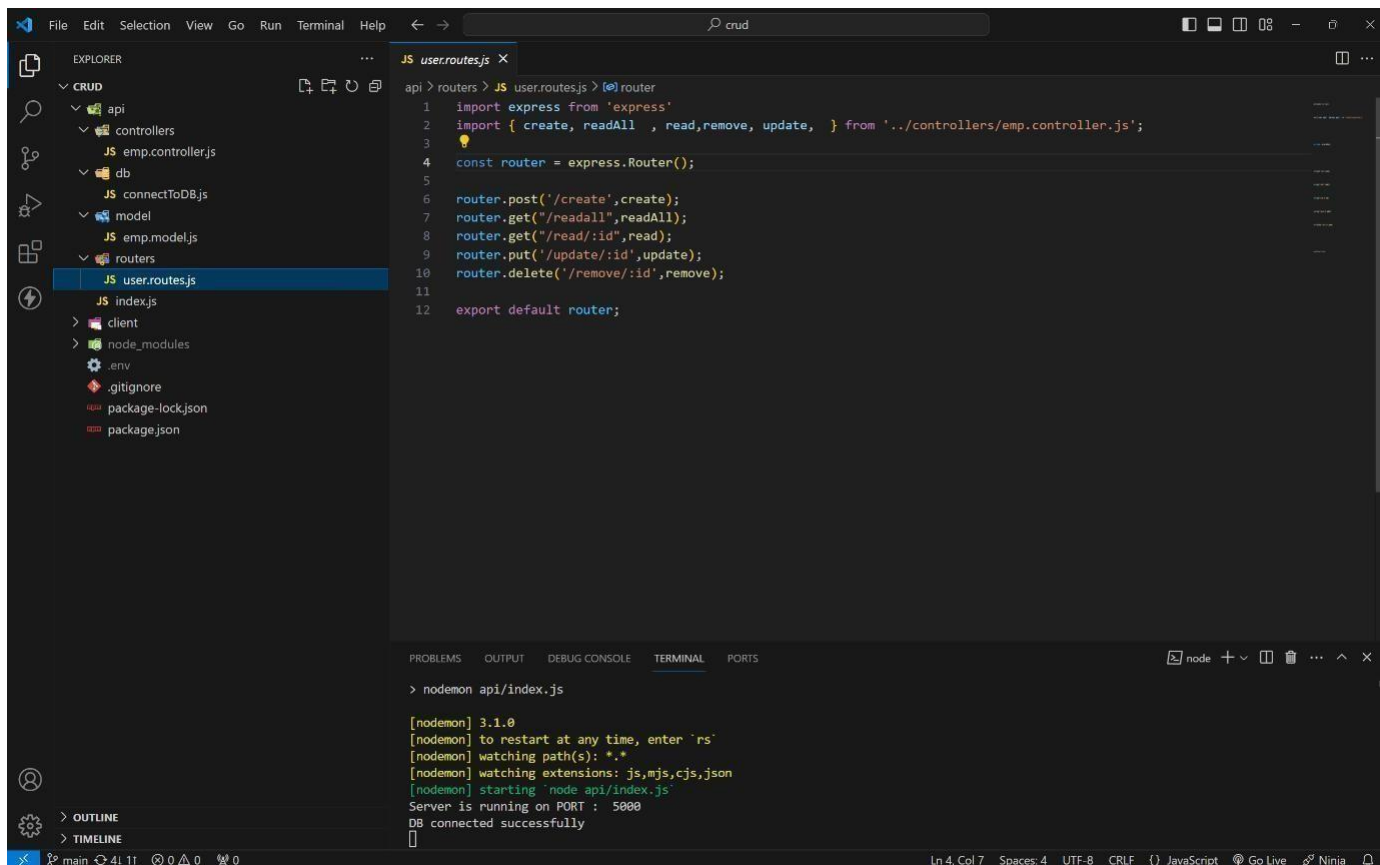
The image shows a VS Code editor window with the Explorer sidebar on the left. The file 'emp.model.js' is selected under the 'model' folder. The main editor displays the code for 'emp.model.js'. The terminal at the bottom shows the command 'nodemon api/index.js' and its output, indicating a successful database connection.

```
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 a VS Code editor with a project structure on the left. The 'EXPLORER' panel shows a folder named 'crud' containing an 'api' folder. Inside 'api', there are subfolders 'controllers' and 'db', and files 'emp.controller.js', 'connectToDB.js', 'emp.model.js', 'routes', 'index.js', 'client', 'node_modules', '.env', '.gitignore', 'package-lock.json', and 'package.json'. The 'routes' file is selected. The main editor shows the content of 'user.routes.js'.

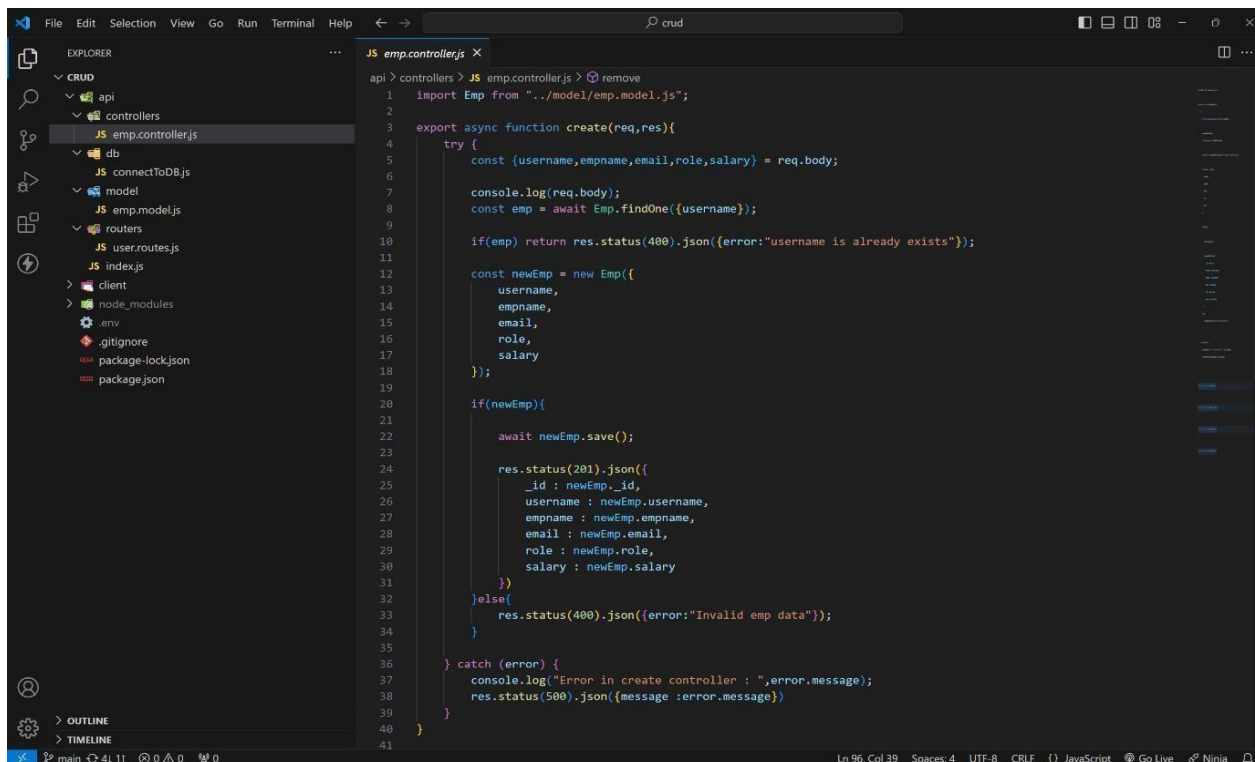
```
api > routes > JS user.routes.js > @ router
1 import express from 'express'
2 import { create, readAll, read, remove, update, } from '../controllers/emp.controller.js';
3
4 const router = express.Router();
5
6 router.post('/create', create);
7 router.get("/readall", readAll);
8 router.get("/read/:id",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

The terminal at the bottom shows the command 'nodemon api/index.js' and the output of the application running successfully.

```
> 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' panel shows the 'controllers' folder selected, and the 'emp.controller.js' file is open in the main editor.

```
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
22      await newEmp.save();
23
24      res.status(201).json({
25        _id : newEmp._id,
26        username : newEmp.username,
27        empname : newEmp.empname,
28        email : newEmp.email,
29        role : newEmp.role,
30        salary : newEmp.salary
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:

The screenshot shows the VS Code editor with the file explorer on the left displaying the project structure. The main editor window shows the `emp.controller.js` file. The `readAll` function is implemented as follows:

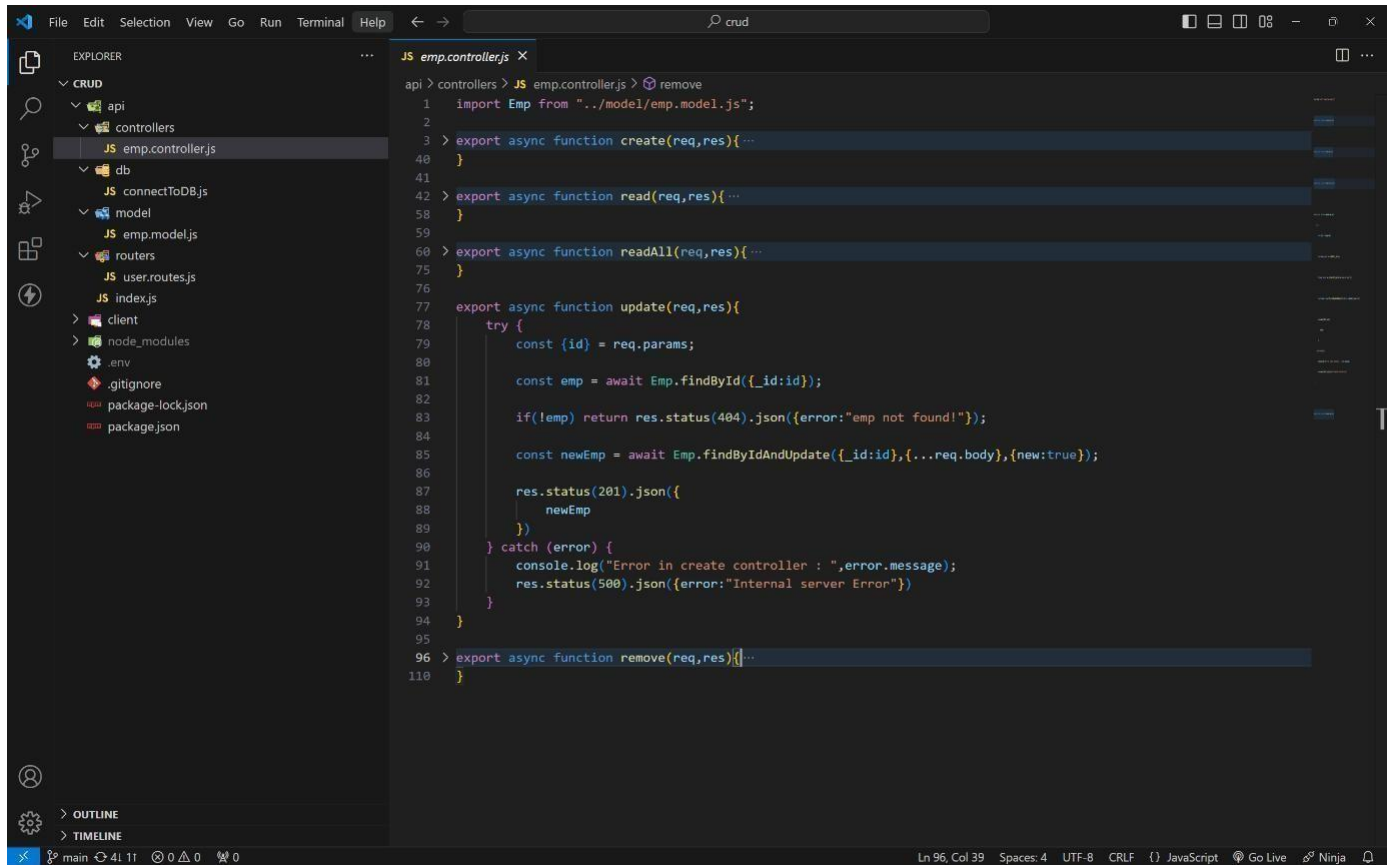
```
api > controllers > JS emp.controller.js > remove
1  import Emp from "../model/emp.model.js";
2
3  > export async function create(req,res){ ...
40 }
41
42 > export async function read(req,res){ ...
58 }
59
60 export async function readAll(req,res){
61   try {
62     const emps = await Emp.find();
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   } catch (error) {
70     console.log("Error in create controller : ",error.message);
71     res.status(500).json({error:"Internal server Error"})
72   }
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 displaying the project structure. The main editor window shows the `emp.controller.js` file. The `read` function is implemented 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   } 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 }
```

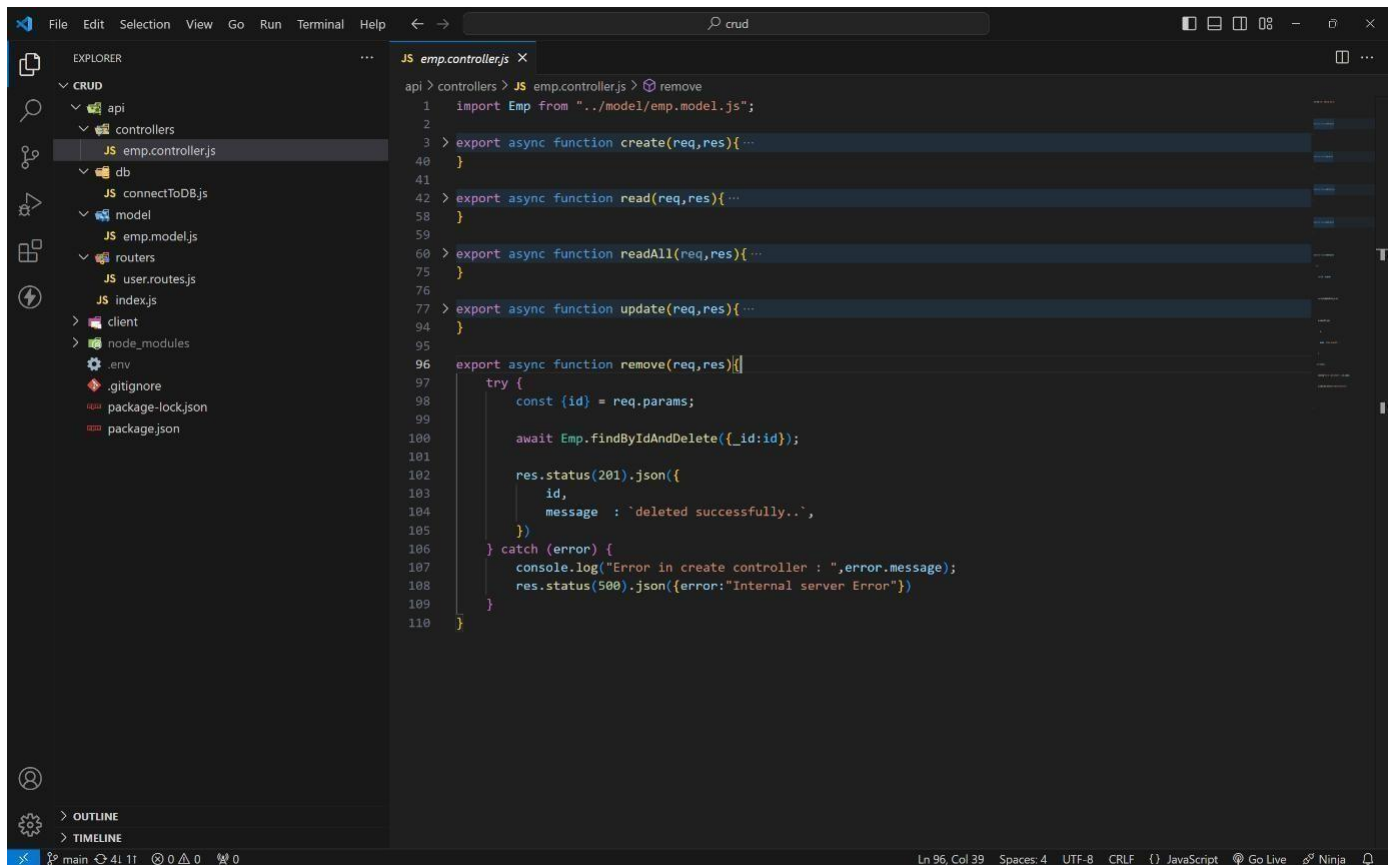
UPDATE:



The screenshot shows a VS Code editor window with the file explorer on the left and the code editor on the right. The file explorer shows a project structure with a 'crud' folder containing 'api', 'controllers', 'db', 'model', 'routers', and 'index.js'. The 'api' folder is expanded, showing 'emp.controller.js'. The code editor shows the 'update' function in 'emp.controller.js'. The function is an async function that takes 'req' and 'res' as arguments. It uses 'req.params' to get the 'id' and 'req.body' to get the 'newEmp' object. It calls 'Emp.findById' to find the existing employee and 'Emp.findByIdAndUpdate' to update the employee. It returns the updated employee as JSON. Error handling is included for cases where the employee is not found or an internal server error occurs.

```
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 }
```

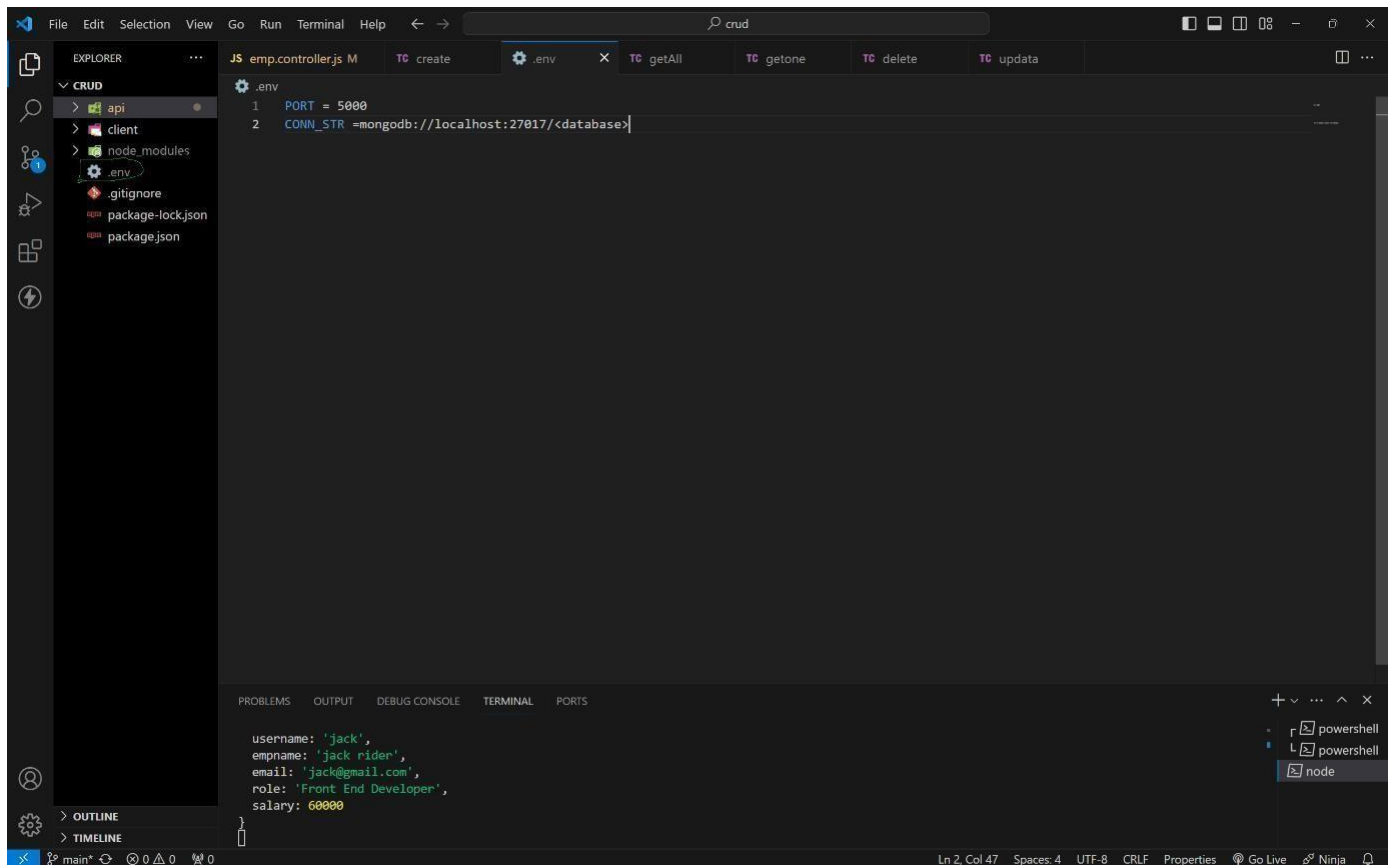
DELETE:



```
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
/?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 :

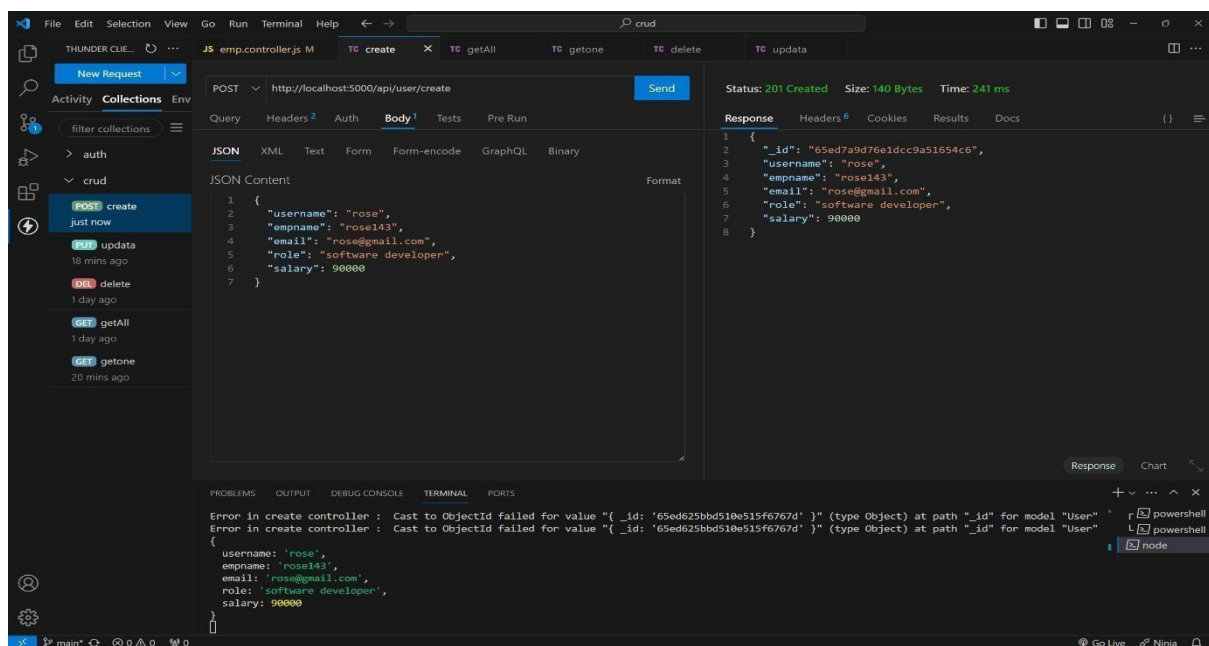
1 . This route is used to delete specific user by passing that user id as a param. method as delete url as

<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 USERNAEM :

The screenshot shows the Thunder Client interface. On the left, a sidebar lists collections: 'auth' and 'crud'. Under 'crud', there are five requests: 'POST create' (1 min ago), 'PUT updata' (18 mins ago), 'DEL delete' (1 day ago), 'GET getAll' (1 day ago), and 'GET getone' (20 mins ago). The 'POST create' request is selected. The main panel shows the request details for 'POST http://localhost:5000/api/user/create'. The 'Body' tab is active, showing a JSON payload:

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

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

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

. The bottom panel shows the 'TERMINAL' tab with the output of the request:

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

READONE :

The screenshot shows the Thunder Client interface. On the left, the 'GET getone' request is selected. The main panel shows the request details for 'GET http://localhost:5000/api/user/read/65ed7b3d76e1dcc9a51654ca'. The 'Response' tab shows a status of '201 Created' with a JSON payload:

```
{  "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 panel shows the 'TERMINAL' tab with the output of the request:

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

READ ALL :

The screenshot shows the Thunder Client interface with a collection named 'crud'. The 'getAll' request is selected, showing a GET request to `http://localhost:5000/api/user/readall`. The response is a JSON array of two employee objects. The terminal shows the raw response.

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

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

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 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

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

UPDATE :

The screenshot shows the Thunder Client interface with a collection named 'crud'. The 'update' request is selected, showing a PUT request to `http://localhost:5000/api/user/update/65ed7b3d76e1dcc9a51654ca`. The request body is a JSON object. The response is a JSON object. The terminal shows an error message.

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

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

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 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
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 REST client tab titled 'crud'. The selected request is a DELETE method to the endpoint `http://localhost:5000/api/user/remove/65ed7b3d76e1dcc9a51654ca`. The status bar indicates a successful response: **Status: 201 Created**, **Size: 68 Bytes**, and **Time: 111 ms**.

The **Query** tab is active, showing a table for query parameters:

parameter	value

The **Response** tab shows the following JSON body:

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

The bottom panel contains the **TERMINAL** output, which shows the application running on Node.js v20.11.0 and restarting due to changes:

```
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
```

On the right side of the terminal, a file explorer shows the project structure with `powershell` and `node` files.