Tips:  
**Tip**: Running both Server.js and React command with one command  
**Tip**: Run commands using script  
**Tip**: Setting up middleware using express.js  
**Tip**: Checking for Validation of payload  
**Tip**: Exporting and importing modules Node.js  
**Tip**: Creating a new user record (document) using mongoose DB  
**Tip**: Using JWT for authentication  
**Tip**: Creating a protected route with your JWT token (**more on middleware**)  
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**Tip**: Using POSTMAN  
**Tip**: When to use AUTH middleware and not use

MernStackProject2022  
This coarse project is from Udemy Course  
<https://www.udemy.com/course/mern-stack-front-to-back/>

Tools  
React Developer Tools  
<https://chrome.google.com/webstore/detail/react-developer-tools/fmkadmapgofadopljbjfkapdkoienihi/related?hl=en>  
  
Redux Developer Tools  
<https://chrome.google.com/webstore/detail/redux-devtools/lmhkpmbekcpmknklioeibfkpmmfibljd/related?hl=en>  
  
After you install them, add them pin them  
A screenshot of a computer screen

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Mongo DB Atlas  
<https://cloud.mongodb.com/v2/624348b28c94b80563a3c46e#clusters>  
PE  
BFLU@  
  
Mongoose Connector  
<https://mongoosejs.com/>  
<https://www.npmjs.com/package/mongoose>  
  
Git repo  
<https://github.com/lionel5116/MernStackProject2022.git>  
  
echo "# MernStackProject2022" >> README.md

git init

git add README.md

git commit -m "first commit"

git branch -M main

git remote add origin https://github.com/lionel5116/MernStackProject2022.git

git push -u origin main

git add .  
git add -A  
git commit -m "first commit"  
git push -u origin main  
  
**Dependencies**  
npm i express express-validator bcryptjs config gravatar jsonwebtoken mongoose request

Below is for allowing use to run react and express.js at the same time

npm i -D nodemon concurrently  
  
We added this to our package.json file (script)

Text

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To run our server, type  
npm run server (as shown in our script above)  
  
Text

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Go to Postman  
Graphical user interface, text, application, email

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Connecting to the MongoDB Database:  
Graphical user interface, text, application, email

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Graphical user interface, text, application, email

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mongodb+srv://lionel5116:<password>@cluster0.jwcnt.mongodb.net/?retryWrites=true&w=majority  
  
For special characters in your password

https://www.mongodb.com/docs/atlas/troubleshoot-connection/#special-characters-in-connection-string-password

**mongodb+srv://lionel5116:Mag17615%40@cluster0.jwcnt.mongodb.net/?retryWrites=true&w=majority**

See project for initial wireup of connection  
And run it:  
A screenshot of a computer

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And that’s all for the initial setup  
  
Creating the React APP  
npx create-react-app client  
  
And now we have our react app  
Graphical user interface, text, application, chat or text message

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**Tip**: Running both Server.js and React command with one command  
To run both the node server and react at the same time with one command:  
Graphical user interface, text, application

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In your root package.json file add:  
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Then run the following command: (at the root application folder)  
npm run dev  
  
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And it works!!!!

Next cd into your client folder and install the following dependencies  
npm i axios react-router-dom redux react-redux redux-thunk redux-devtools-extension moment react-moment  
  
**Tip**: Adding a proxy  
Add this to your package.json file in the client  
Text

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**Tip**: Run commands using script  
Remember in our script entry in package.json  
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Our command to run our app always starts:  
npm run <script command >  
So to run our server (just the node.js)  
npm run server (as opposed to node server.js)  
Node looks at the “main”: “server.js” tag to determine node.js app’s entry point  
Running this command utilizes “nodemon” with watches for changes in our code, this way when we make a change, node recompiles

**Tip**: Setting up middleware using express.js  
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**Middleware**:

Middleware functions are functions that have access to the request object ( req ), the response object ( res ), and the next middleware function in the application's request-response cycle.  
Middleware checks for validity of a post’s payload. Normally used for authentication  
  
**Tip**: Checking for Validation of payload  
In addition to added your middleware code (shown in the tip above)  
Graphical user interface, text

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Then when perform a post that is invalid:  
Graphical user interface, text, application, email

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Graphical user interface, text, application, email

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**Tip**: Exporting and importing modules Node.js  
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When you hover over the import using the require .. keyword

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Notice how **internally** it uses the **import** keyword (just like in react/angular)

**Tip**: Creating a new user record (document) using mongoose DB  
The standard way that most developers create documents in a mongoDB is to use mongoose. The first thing you do is create a schema:  
Text

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Next grab an import  
A screenshot of a computer

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Then as show below  
We get the request body from the POST  
We create an instance of the user schema, set the values  
Then to write to our database, we use the command  
<await> user.save() (user.save is a promise so we use the await keyword)

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So before saving:  
We only have one database (this was a database I created for another project)  
Graphical user interface, email

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After we do our post  
Graphical user interface, text, application, email

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MongoDb creates a database called test, then it creates create’s the user document:

Graphical user interface, text, application, email

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**Tip**: Using JWT for authentication  
https://jwt.io/  
Graphical user interface, text, website

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Explains what each part of the encoded parts of the token mean  
Wiring it up in our project:  
In our users route

Text

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When we write the record, we get a token  
Text

Description automatically generated  
  
Graphical user interface, text, application, email

Description automatically generated  
  
To check your token, go to  
https://jwt.io/  
And paste your token and you can see the encode and decode  
Graphical user interface, text, application, email

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Graphical user interface, text, application, email

Description automatically generated

**Tip**: Creating a protected route with your JWT token (more on middleware)  
  
**Middleware**:

Middleware functions are functions that have **access to the request object** ( ***req*** ), ***the response object*** ( res ), and the next middleware function in the application's **request-response** cycle.  
**Middleware checks for validity of a post’s payload**. **Normally used for authentication**  
  
Below we created a middleware folder and a .js file to handle decoding our jwt token

Then in our auth.js route, we protect the route with the auth.js middleware code  
A screenshot of a computer

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To test it out, we grab the token that we created when we created the first user  
Graphical user interface, text, application

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We add a header with key that we entered in our middleware and cut and paste the jwt token in the value, when we hit the URL, we get Auth route  
  
If we change the token we get:

Graphical user interface, text, application, email

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Getting the user information

If you change the code in the auth.js route

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Working with middleware and passing in the token in the get request, the middleware will decode the token and grab the user from the response and return the user object that is tied to the token (see the code below) …(sweeetttttt!!!). This is classic “MIDDLEWARE………….”  
Graphical user interface, text

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Graphical user interface, text, application, email

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**Tip**: Logging in with email address and password an validating against our token  
In the auth.js file, we add another route (POST) to pass in a payload with our email address and password to authenticate, see the auth.js POST route  
  
Text

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**Tip**: Using POSTMAN  
Postman is good for saving all of your previous posts / requests for testing  
Graphical user interface, text, application, email

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You can also use presets for things that you enter a lot

Graphical user interface, text, application, email

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Graphical user interface, text, application, email

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**Tip**: When to use AUTH middleware and not use  
Whenever you are using a Token (a protected route), you have to make sure you include your “auth” middleware in your route (this is typically for what we call a “private” ->protected route  
Text

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//For public routes (non-protected), where we are not using a token, we don’t need to pass in middleware  
Text

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