To create React App (We shall do it using vite)

- PS D:\MERN\MERNwithSigninSignup> npm create vite@latest client
  - Select React
  - Select JavaScript+SWC

- PS D:\MERN\MERNwithSigninSignup> cd .\client\
- PS D:\MERN\MERNwithSigninSignup\client> npm I //For installation
- Search **tailwind css vite >> goto first link (https://tailwindcss.com/docs/guides/vite)**
  - Follow the steps in the link
    - PS D:\MERN\MERNwithSigninSignup\client> npm install -D tailwindcss postcss autoprefixer
    - PS D:\MERN\MERNwithSigninSignup\client> npx tailwindcss init –p
    - Configure your template paths: Add the paths to all of your template files in your tailwind.config.js file.
    - Add the Tailwind directives to your CSS: Add the @tailwind directives for each of Tailwind's layers to your ./src/index.css file.
    - Clean the folder structure delete unwanted files from the folder : *.svg files, App.css

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Install some important VS code extensions

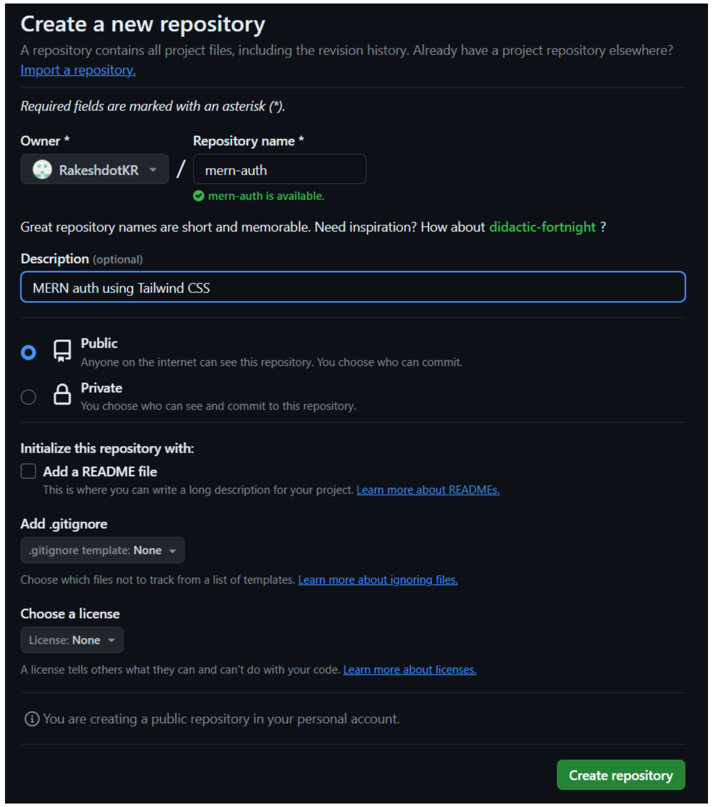
- ES7+ React/Redux/React-Native/JS snippets
- Tailwind CSS IntelliSense
- Prettier - Code formatter

App.jsx:

```
import React from 'react'
export default function App() {
  return (
    <div>
      <h1>Hello buddy</h1></div>
  )}
```

GIT Integration:

- PS D:\MERN\MERNwithSigninSignup> git init
- PS D:\MERN\MERNwithSigninSignup> git add .
- PS D:\MERN\MERNwithSigninSignup> git commit -m 'install reactjs and tailwind css'
- Go to github.com and create a repo as follows:



Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

Required fields are marked with an asterisk (*).

Owner *: RakeshdotKR / Repository name *: mern-auth

mern-auth is available.

Great repository names are short and memorable. Need inspiration? How about didactic-fortnight ?

Description (optional): MERN auth using Tailwind CSS

Public [✓] — Anyone on the internet can see this repository. You choose who can commit.

Private — You choose who can see and commit to this repository.

Initialize this repository with:

Add a README file — This is where you can write a long description for your project. Learn more about READMEs.

Add .gitignore: .gitignore template: None

Choose which files not to track from a list of templates. Learn more about ignoring files.

Choose a license: License: None

A license tells others what they can and can't do with your code. Learn more about licenses.

You are creating a public repository in your personal account.

Run following commands in terminal:

```
PS D:\MERN\MERNwithSigninSignup> git remote add origin https://github.com/RakeshdotKR/mern-auth.git
PS D:\MERN\MERNwithSigninSignup> git branch -M main
PS D:\MERN\MERNwithSigninSignup> git push -u origin main
```

Create **pages** folder and create following files: client\src\pages

- SignIn.jsx
- SignUp.jsx
- About.jsx
- Home.jsx
- Profile.jsx

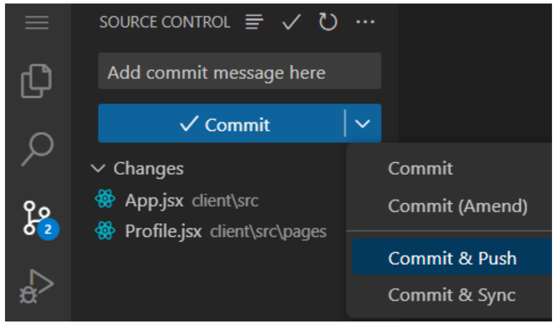
Adding Navigation

```
PS D:\MERN\MERNwithSigninSignup\client> npm i react-router-dom          //for adding navigation
```

App.jsx:

```
import { BrowserRouter, Routes, Route } from "react-router-dom";
import Home from "./pages/Home";
import About from "./pages/About";
import SignIn from "./pages/SignIn";
import SignUp from "./pages/SignUp";
import Profile from "./pages/Profile";
export default function App() {
  return (
    <BrowserRouter>
      <Routes>
        <Route path="/" element={<Home/>}/>
        <Route path="/about" element={<About/>}/>
        <Route path="/sign-in" element={<SignIn/>}/>
        <Route path="/sign-up" element={<SignUp/>}/>
        <Route path="/profile" element={<Profile/>}/>
      </Routes>
    </BrowserRouter>
  );
}
```

Now whenever we need to commit the changes to GitHub do the following:



Adding Header Component:

client\src\components\Header.jsx:

```
import { Link } from "react-router-dom";
export default function Header() {
  return (
    <div className="bg-slate-300">
      <div className="flex justify-between items-center max-w-7xl mx-auto p-3">
        <Link to="/">
          <h3 className="font-semibold">Auth App</h3>
        </Link>
        <ul className="flex gap-3">
          <Link to="/">
            <li>Home</li>
          </Link>
          <Link to="/about">
            <li>About</li>
          </Link>
          <Link to="/sign-in">
            <li>Sign In</li>
          </Link>
        </ul>
      </div>
    </div>
  );
}
```

The Backend

Create & run the server

Create a folder called as ‘api’ in the root folder:

In terminal:

- PS D:\MERN\MERNwithSigninSignup\api> npm init –y
- PS D:\MERN\MERNwithSigninSignup\api> npm install express nodemon

```
//to be added in package.json
"scripts": {
    "dev": "nodemon index.js",
    "start": "node index.js"
  },
```

PS D:\MERN\MERNwithSigninSignup\api> npm run dev   //to run server

api\index.js:

```
import express from "express"; //Add this line in package.json "description": "","type":"module",

const app = express();

app.listen(3000,()=>{
    console.log("Server listening on port 3000");
});
```

Connect to Database

PS D:\MERN\MERNwithSigninSignup\api> npm i mongoose

PS D:\MERN\MERNwithSigninSignup\api> npm i dotenv

api\index.js

```
dotenv.config();
import express from "express"; //Add this line in package.json "description": "","type":"module",
import mongoose from "mongoose";
import dotenv from 'dotenv';

// console.log("Mongo Uri: ",process.env.MONGOURI);
mongoose
.connect(process.env.MONGOURI, { useNewUrlParser: true, useUnifiedTopology: true })
.then(()=>{
    console.log("Successfully connected to MongoDB");
})
.catch((err)=>{
    console.log(err);
});

const app = express();
app.listen(process.env.PORT,()=>{
    console.log("Server listening on port 3000");
});
```

Create & add user model

api\models\user.model.js

```
import mongoose from "mongoose";

const userSchema = new mongoose.Schema({
    username:{
        type:String,
        required:true,
        unique:true,
    },
    email:{
        type:String,
        required:true,
        unique:true,
    },
    password:{
        type:String,
        required:true,
    }
},{timestamps:true});

const User = mongoose.model('User',userSchema); //Here 'User' start with Uppercase and singular

export default User;
```

Build APIs

api\index.js (add below at end of file)

```
app.get("/", (req, res) => {
  res.json({
    message: "GET method is working fine",
  });
});
```

- Start backend server and use url **http://localhost:3000/** in browser

Separating Routes into folders

api\routes\user.route.js

```
import express from 'express';

const router = express.Router();

router.get("/", (req, res) => {
    res.json({
      message: "GET method is working fine",
    });
  });
  export default router;
```

api\index.js

```
import userRoutes from './routes/user.route.js'; //.js at end is necessary
app.use('/api/user',userRoutes); //http://localhost:3000/api/user/
```

Creating separate Controllers

api\controllers\user.controller.js

```
export const test = (req,res) =>{
    res.json({
        message:'Api is working',
    });
}
```

api\routes\user.route.js

```
import express from 'express';
import { test } from '../controllers/user.controller.js'; //.js at the end is necessary. This is new here

const router = express.Router();

// router.get("/", (req, res) => {
//     res.json({
//       message: "GET method is working fine",
//     });
//   });

router.get('/',test);   //This the new line here

export default router;
```

Create Sign up API route

api\routes\auth.route.js

```
import express from 'express';
import {signup} from '../controllers/auth.controller.js';
const router = express.Router();

router.post('/signup',signup);

export default router;
```

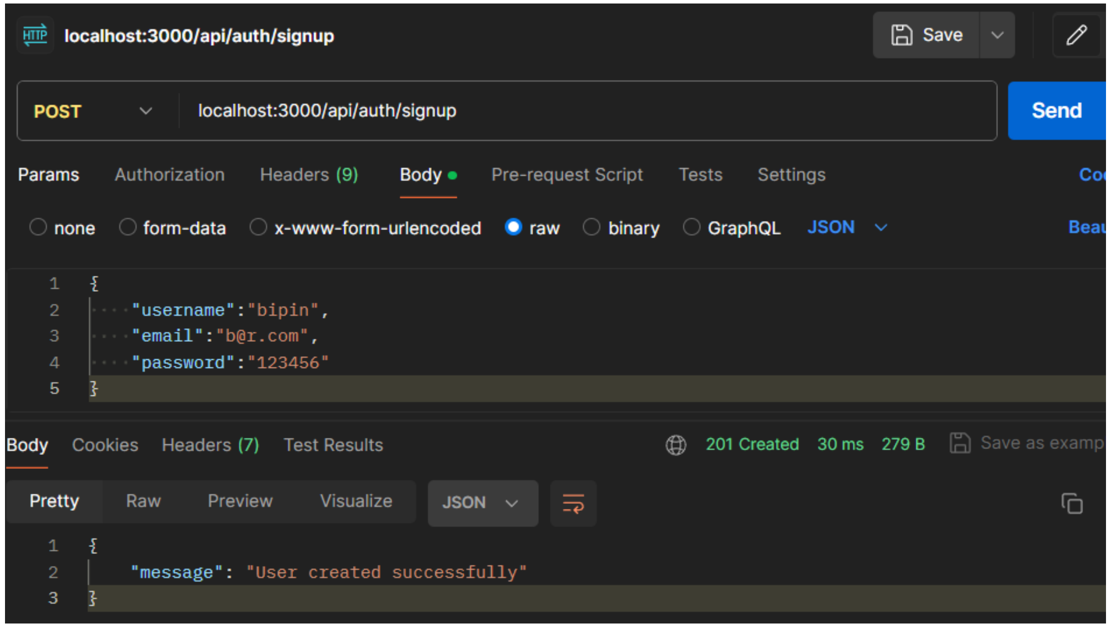
api\controllers\auth.controller.js

```
import User from "../models/user.model.js";
export const signup = async(req,res)=>{
    console.log(req.body); //app.use(express.json()); to be added in index.js

    const {username,email,password} = req.body;
    const newUser = new User({username,email,password});

    try{
        await newUser.save();
        res.status(201).json({message:'User created successfully'});
    }
    catch(error){
        res.status(500).json(error.message);
    }
};
```

Signup API testing in postman



POST localhost:3000/api/auth/signup

```
{
····"username":"bipin",
····"email":"b@r.com",
····"password":"123456"
}
```

201 Created 30 ms 279 B

```
{
    "message": "User created successfully"
}
```

Encrypting the password

PS D:\MERN\MERNwithSigninSignup\api> **npm i bcryptjs**

api\controllers\auth.controller.js

```
import User from "../models/user.model.js";
import bcryptjs from 'bcryptjs';

export const signup = async(req,res)=>{
    console.log(req.body); //app.use(express.json()); to be added in index.js

    const {username,email,password} = req.body;
    const hashPassword = bcryptjs.hashSync(password,10);
    const newUser = new User({username,email,password:hashPassword});

    try{
        await newUser.save();
        res.status(201).json({message:'User created successfully'});
    }
    catch(error){
        res.status(500).json(error.message);
    }
};
```

Create a middleware and a function to handle the errors

api\index.js (add it at the end)

```
app.use((err,req,res,next)=>{
  const statusCode = err.statusCode || 500;
  const message = err.message || 'Internal server error';
  return res.status(statusCode).json({
    success:false,
    message,
    statusCode,
  });
});
```

Now in the controllers add the following

```
export const signup = async(req,res,next)=>{

    try{
            …
    }
    catch(error){
            next(error);  //This line to be added
    }
};
```

Signup UI page

client\src\pages\SignUp.jsx

```
// import React from "react";
import { useState } from "react";
import { Link } from "react-router-dom";
export default function SignUp() {
  const [formData, setFormData] = useState({});
  /* Adding state individually of the form:
  const [username,setusername] = useState('');
  const [email,setemail] = useState('');
  const [password,setpassword] = useState(''); */

  const handleChange = (e) => {
    setFormData({ ...formData, [e.target.id]: e.target.value });
    //console.log(formData);
  };
  const handleSubmit = async (e) => {
    e.preventDefault();
    const res = await fetch('/api/auth/signup', {
      method: 'POST',
      headers: {
        'Content-Type': 'application/json',
      },
      body: JSON.stringify(formData),
    });
    const data = await res.json();
    console.log(data);
    // {message:'User created successfully'}
    // console.log(message);
  };
  return (
    <div className="p-3 max-w-lg mx-auto">
      <h1 className="text-3xl text-center font-semibold my-7">Sign up</h1>
      <form onSubmit={handleSubmit} className="flex flex-col gap-4">
      <input
          type='text'
          placeholder='Username'
          id='username'
          className='bg-slate-100 p-3 rounded-lg'
          onChange={handleChange}
        />
        <input
          type='email'
          placeholder='Email'
          id='email'
          className='bg-slate-100 p-3 rounded-lg'
          onChange={handleChange}
        />
        <input
          type='password'
          placeholder='Password'
          id='password'
          className='bg-slate-100 p-3 rounded-lg'
          onChange={handleChange}
        />
        <button
          className="bg-slate-900 text-white p-3 rounded-lg uppercase hover:opacity-95
        disabled:opacity-80"
        >
          Sign Up
        </button>
      </form>
      <div className="flex gap-2 mt-5">
        <p>Have an account?</p>
        <Link to="/sign-in">
          <span className="text-blue-600">Sign In</span>
        </Link>
      </div>
    </div>
  );
}
```

Adding:

- **Error handling in signup page,**
- **Page Loading icon/message concept**
- **navigate to signin after signup**

client\src\pages\SignUp.jsx

```
// import React from "react";
import { useState } from "react";
import { Link,useNavigate } from "react-router-dom";
export default function SignUp() {
  const [formData, setFormData] = useState({});
  const [error, setError] = useState(null);
  const [loading, setLoading] = useState(false);

  /* Adding state individually of the form:
  const [username,setusername] = useState('');
  const [email,setemail] = useState('');
  const [password,setpassword] = useState(''); */
  const navigate = useNavigate();
  const handleChange = (e) => {
    setFormData({ ...formData, [e.target.id]: e.target.value });
    //console.log(formData);
  };
  const handleSubmit = async (e) => {
    e.preventDefault();
    try {
      setLoading(true);
      setError(false);
      const res = await fetch("/api/auth/signup", {
        method: "POST",
        headers: {
          "Content-Type": "application/json",
        },
        body: JSON.stringify(formData),
      });
      const data = await res.json();
      console.log(data);

      setLoading(false);
      if (data.success === false) {
        setError(true);
        return;
      }
      navigate("/sign-in");
    } catch (error) {
      setLoading(false);
      setError(true);
    }
  };
  return (
    <div className="p-3 max-w-lg mx-auto">
      <h1 className="text-3xl text-center font-semibold my-7">Sign up</h1>
      <form onSubmit={handleSubmit} className="flex flex-col gap-4">
        <input
          type="text"
          placeholder="Username"
          id="username"
          className="bg-slate-100 p-3 rounded-lg"
          onChange={handleChange}
        />
        <input
          type="email"
          placeholder="Email"
          id="email"
          className="bg-slate-100 p-3 rounded-lg"
          onChange={handleChange}
        />
        <input
          type="password"
          placeholder="Password"
          id="password"
          className="bg-slate-100 p-3 rounded-lg"
          onChange={handleChange}
        />
        <button disabled={loading}
          className="bg-slate-900 text-white p-3 rounded-lg uppercase hover:opacity-95
        disabled:opacity-80"
        >
           {loading ? 'In Progress' : 'Sign Up'}
        </button>
      </form>
      <div className="flex gap-2 mt-5">
        <p>Have an account?</p>
        <Link to="/sign-in">
          <span className="text-blue-600">Sign In</span>
        </Link>
      </div>
      <p className='text-red-700 mt-5'>{error && 'Something went wrong!'}</p>
    </div>
  );
}
```

Create sign in API route

api\controllers\auth.controller.js

```
import User from "../models/user.model.js";
import bcryptjs from "bcryptjs";
import { errorhandler } from "../utils/error.js";
import jwt from "jsonwebtoken";

export const signup = async (req, res, next) => {
  console.log(req.body); //app.use(express.json()); to be added in index.js

  const { username, email, password } = req.body;
  const hashPassword = bcryptjs.hashSync(password, 10);
  const newUser = new User({ username, email, password: hashPassword });

  try {
    await newUser.save();
    res.status(201).json({ message: "User created successfully" });
  } catch (error) {
    // res.status(500).json(error.message);
    next(error);
  }
};

export const signin = async (req, res, next) => {
  const { email, password } = req.body;
  try {
    const validUser = await User.findOne({ email });
    if (!validUser) return next(errorhandler(404, "User not found"));
    const validPassword = bcryptjs.compareSync(password, validUser.password);
    if (!validPassword) return next(errorhandler(401, "Wrong credentials"));
    const token = jwt.sign({ id: validUser._id }, process.env.JWT_SECRET);
    const { password: hashedPassword, ...rest } = validUser._doc; //_doc: destructure
    const expiryDate = new Date(Date.now() + 3600000); // 1 hour
    res
      .cookie("access_token", token, { httpOnly: true, expires: expiryDate })
      .status(200)
      //.json(validUser) //gives password as part of the response so we need to avoid this
      .json(rest);
  } catch (error) {
    next(error);
  }
};
```

api\routes\auth.route.js

```
import express from "express";
import { signup, signin } from "../controllers/auth.controller.js";

const router = express.Router();

router.post("/signup", signup);
router.post("/signin", signin);

export default router;
```

api\.env (append following)

```
JWT_SECRET=shivashiva369
```

Errors:

1. MongooseError: The `uri` parameter to `openUri()` must be a string, got "undefined". Make sure the first parameter to `mongoose.connect()` or `mongoose.createConnection()` is a string.

Solution:

- Make sure the .env file is in the same location as the index.js
- And in the .env file it should be like follows (not within quotes)
    - MONGOURI = mongodb://127.0.0.1:27017/mern-auth;