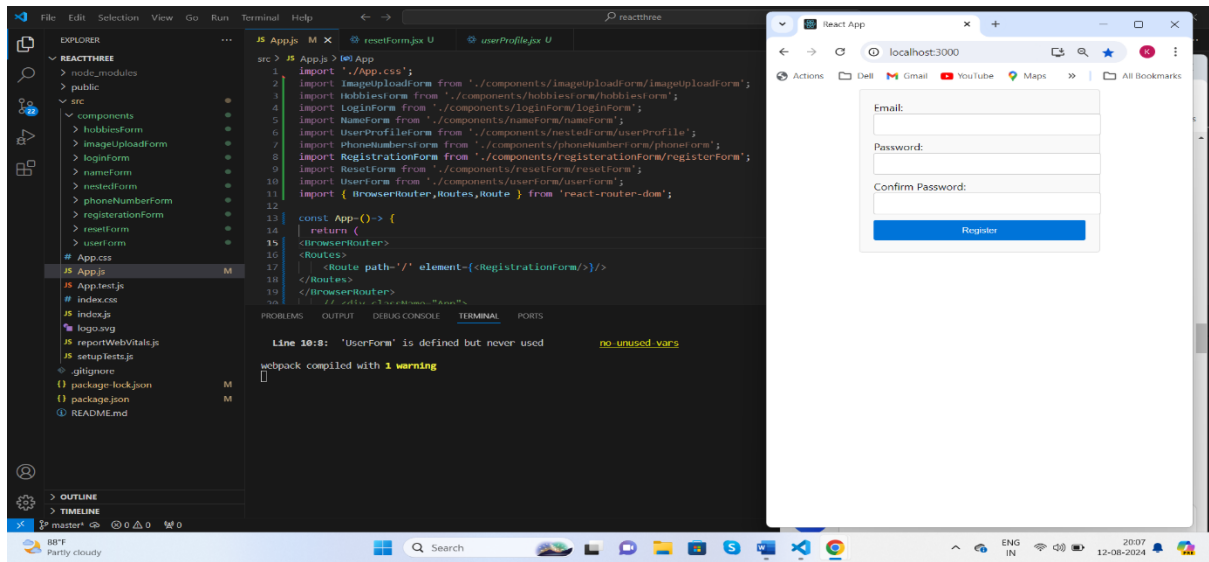


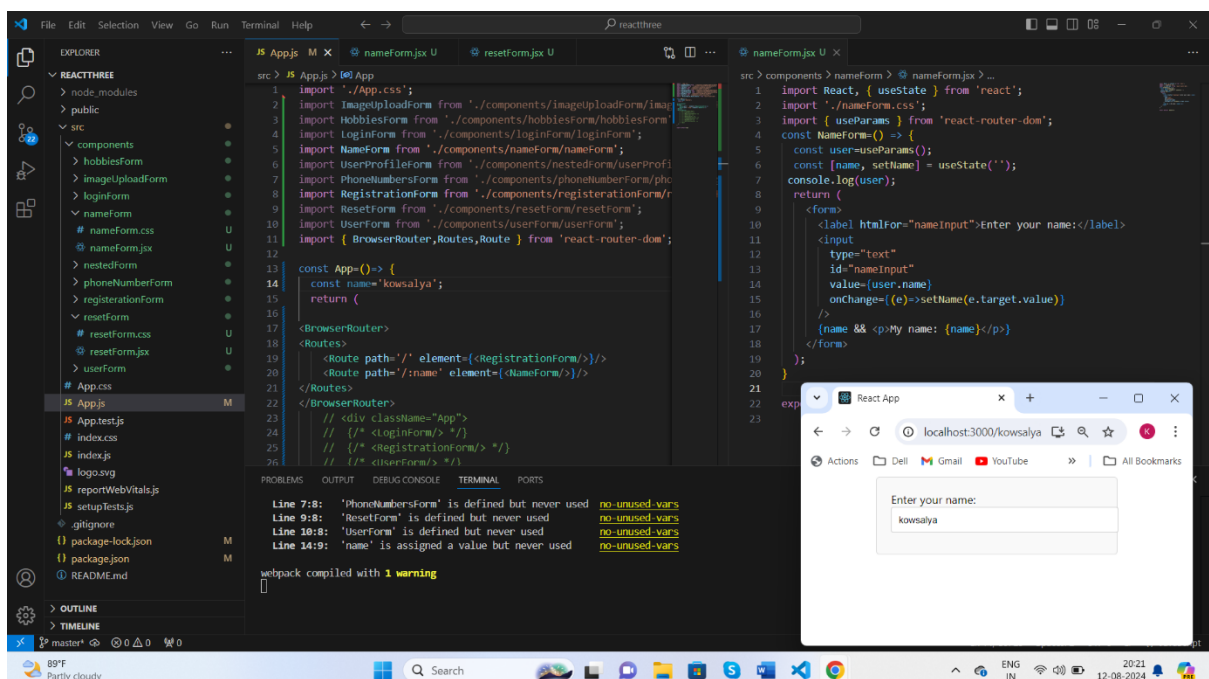
## React - 4(React Router DOM)

Q1. Set up basic routing in a React application using `react-router-dom`? Explain the roles of `BrowserRouter`, `Route`, and `Switch` in this setup.

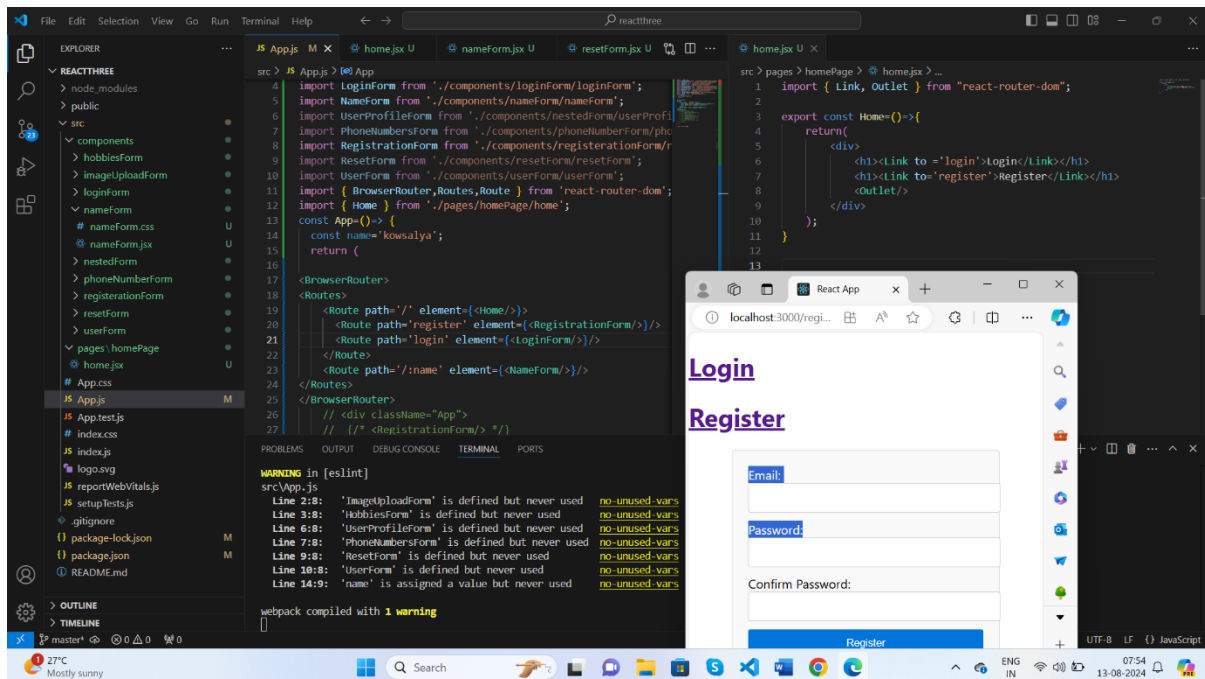
Ans: In React Router v6, the `Switch` component has been replaced by the `Routes` component so I will use `Routes` in place of `Switch`



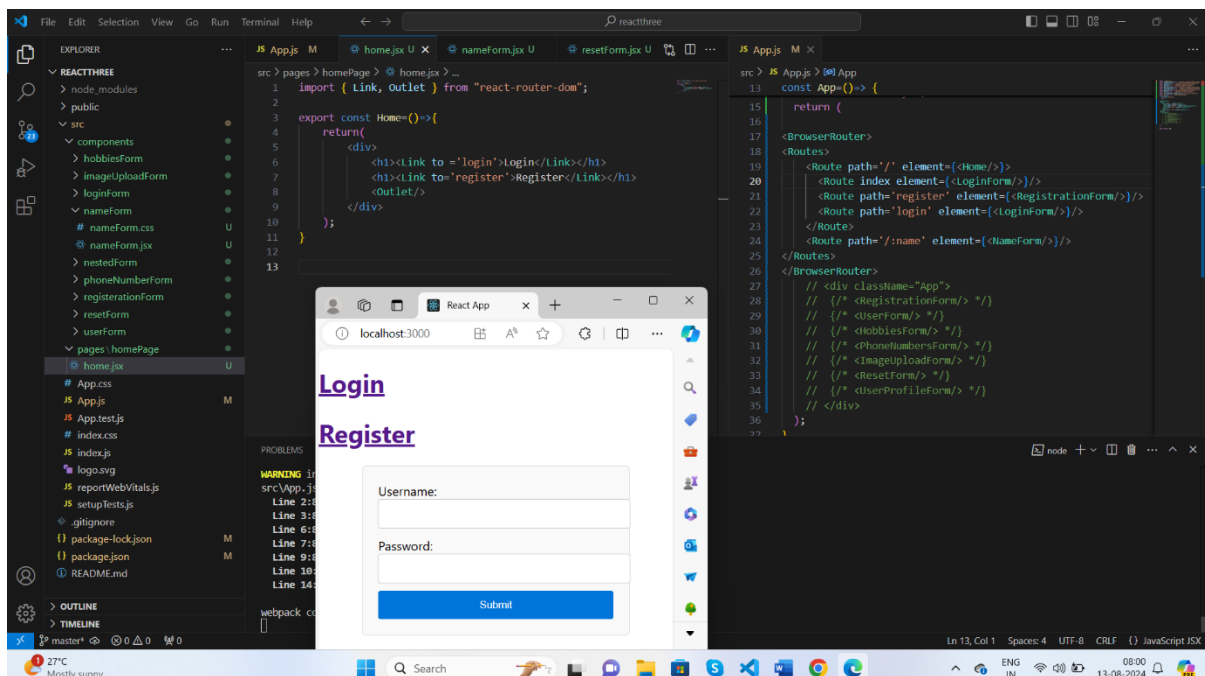
Q2. Create a route with dynamic URL parameters using React Router DOM? Provide an example of how to access these parameters within a component.



Q3. Create nested routes in React Router DOM, and how do you implement them? Provide an example where a parent route has nested child routes.



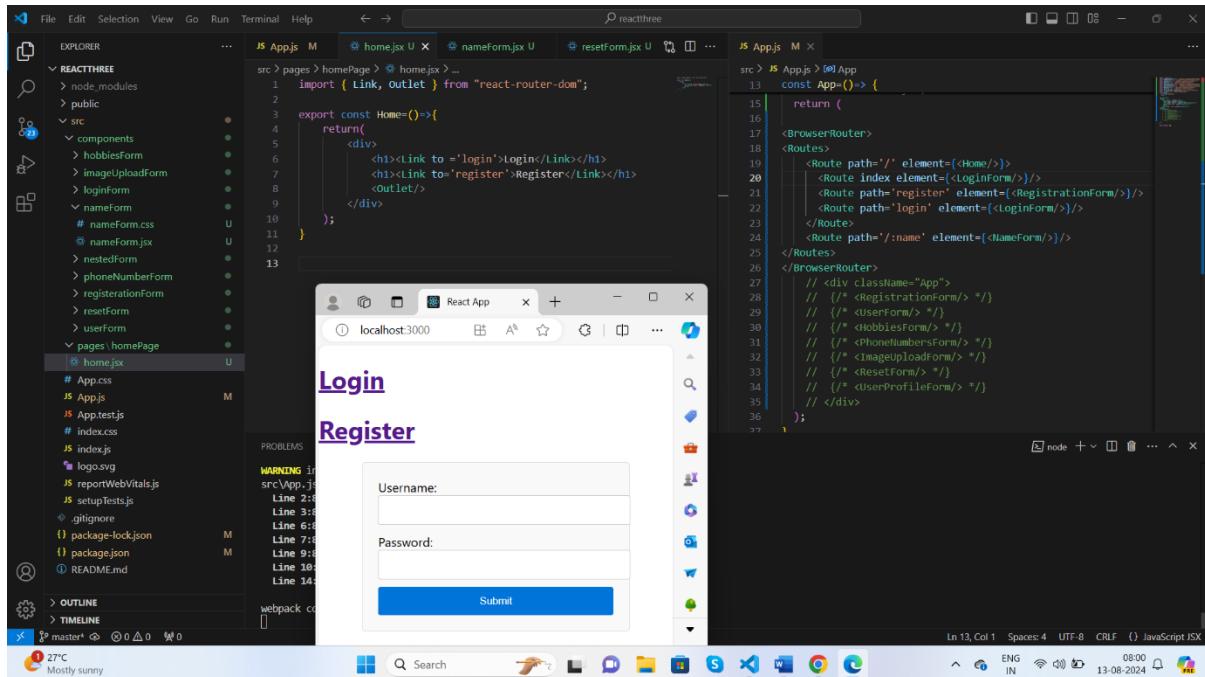
On root page / to automatically display use index keyword



Q4. Explain the difference between using the `Link` component and a traditional `<a>` tag for navigation in a React Router DOM application. Why is `Link` preferred for internal routing? With Example

Ans:

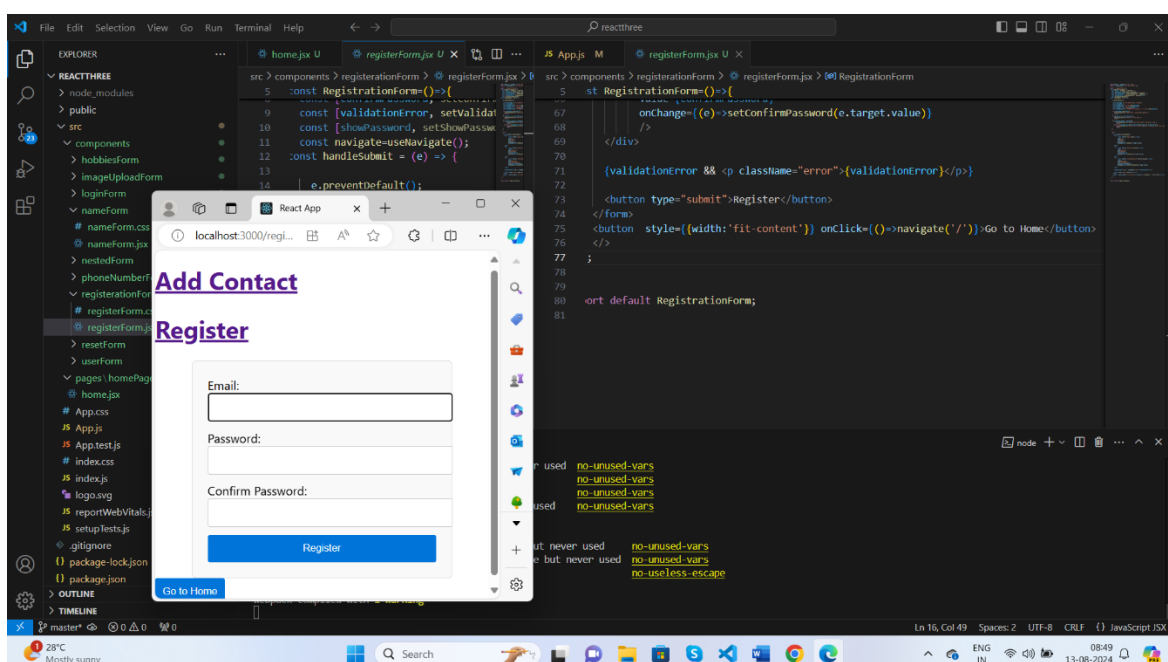
Using `<a>` gets page reloaded but `Link` won't get whole page reload so `Link` gets preferred in Single Page Application i.e it render only require components but not whole other component in same page.



Q5. Implement a redirect in React Router DOM? Provide an example where a user is redirected to a different route after a specific action.

Ans:

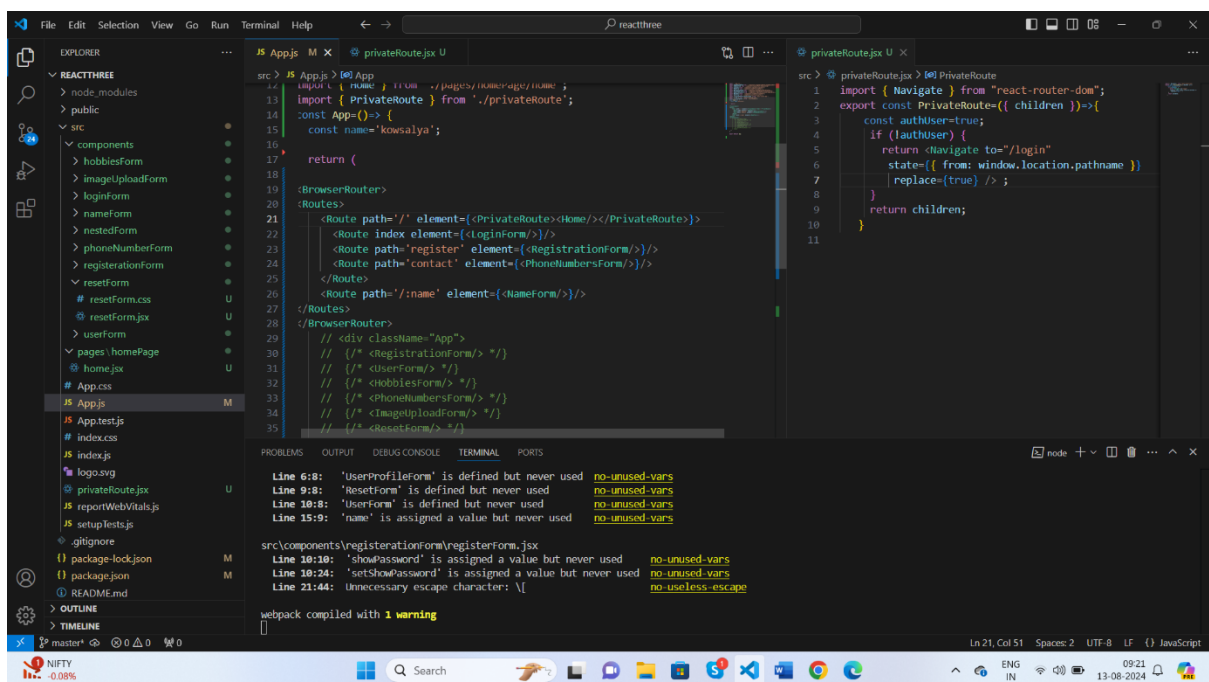
I am using `useNavigate()` hook to move to home page on click of button.



Q6. What is a private route in React Router DOM, and Create one?  
Describe a scenario where a private route would be necessary means  
give example.

Ans:

A **private route** is a route in our application that requires authentication or authorization. It's used to protect certain pages from unauthenticated users. When a user tries to access a private route, they are either redirected to a login page or denied access based on their authentication status.

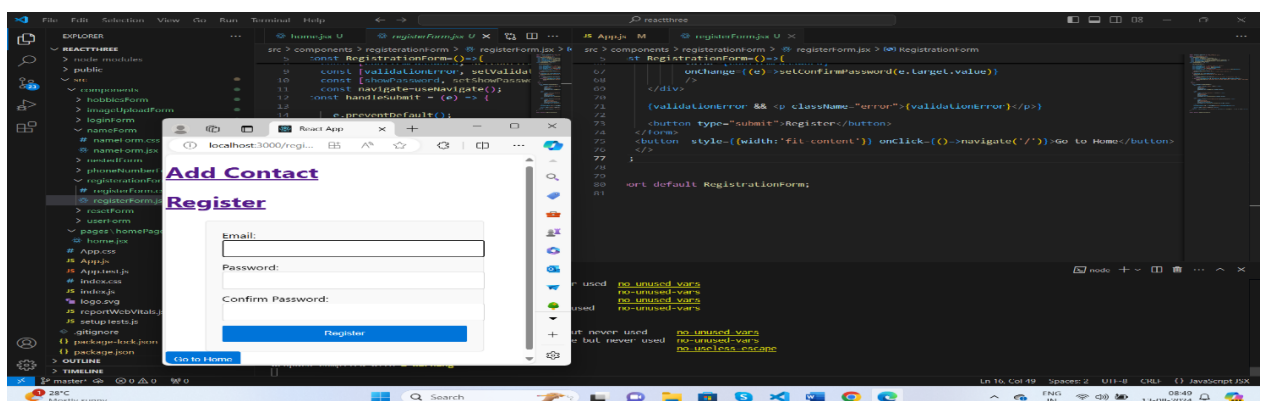


```
src/App.js
1 import { BrowserRouter } from 'react-router-dom';
2 import { PrivateRoute } from './privateRoute';
3 const App = () => {
4   const name = 'kowsalya';
5   return (
6     <BrowserRouter>
7       <Routes>
8         <Route path="/" element={<PrivateRoute><Home></PrivateRoute>} />
9         <Route index element={<LoginForm>} />
10        <Route path="/register" element={<RegistrationForm>} />
11        <Route path="/contact" element={<PhoneNumbersForm>} />
12      </Routes>
13    </BrowserRouter>
14  );
15};
16
17export default App;
18
19// src/components/registerForm/registerForm.jsx
20// Line 10:10: 'showPassword' is assigned a value but never used
21// Line 10:24: 'setShowPassword' is assigned a value but never used
22// Line 21:44: Unnecessary escape character: \[
23
24webpack compiled with 1 warning
```

```
src/privateRoute.jsx
1 import { Navigate } from 'react-router-dom';
2 export const PrivateRoute = ({ children }) => {
3   const authUser = true;
4   if (!authUser) {
5     return <Navigate to="/login"
6       state={{ from: window.location.pathname }}
7       replace={true} />;
8   }
9   return children;
10};
```

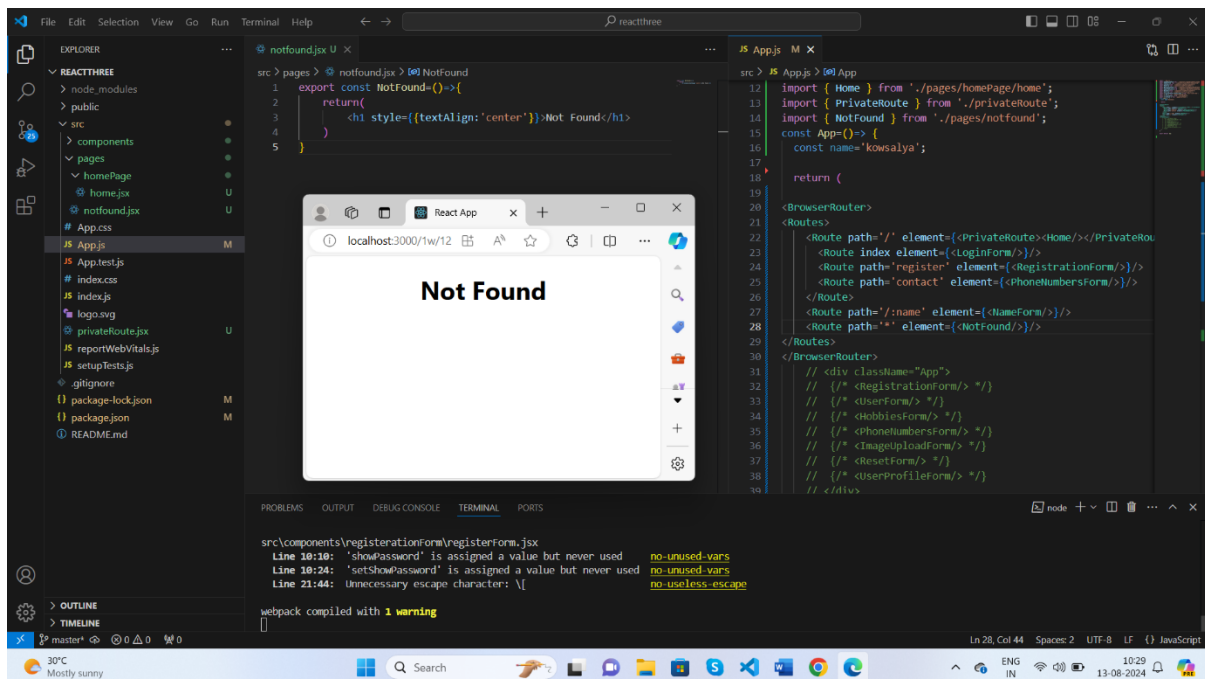
Q7. Navigate programmatically within a component using React Router DOM? Provide an example where a button click triggers a route change.

Ans: On Click of Button in this code make it to navigate to home '/' page here



```
src/components/registerForm/registerForm.jsx
1 import { useState } from 'react';
2 import { useNavigate } from 'react-router-dom';
3 const RegisterForm = () => {
4   const [validationError, setValidationError] = useState('');
5   const [showPassword, setShowPassword] = useState(false);
6   const navigate = useNavigate();
7   const handleSubmit = (e) => {
8     e.preventDefault();
9     // ... validation logic ...
10    navigate('/');
11  };
12  return (
13    <div>
14      <h3>Add Contact</h3>
15      <h3>Register</h3>
16      <div>
17        <input type="text" value="" />
18        <input type="password" value="" />
19        <input type="password" value="" />
20      </div>
21      <button type="submit" value="Register" />
22      <button style={{width:'fit content'}} onClick={()=>navigate('/')}>Go to Home</button>
23    </div>
24  );
25};
26
27export default RegisterForm;
```

Q8. Handle non-existent routes (404 pages) in a React Router DOM application? Provide an example of setting up a "Not Found" page.



```
src > pages > notfound.jsx > Notfound
1 export const Notfound={()=>{
2   return(
3     <h1 style={{textAlign:'center'}}>Not Found</h1>
4   )
5 }}
```

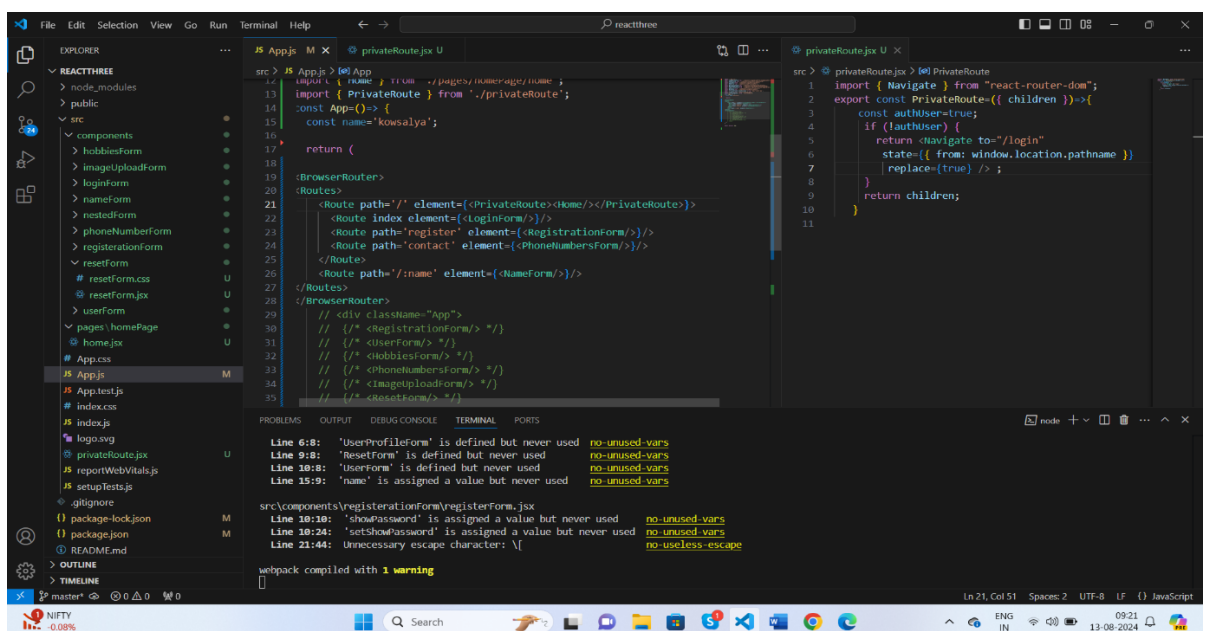
```
src > App.js > App
12 import { Home } from './pages/homePage/home';
13 import { PrivateRoute } from './privateRoute';
14 import { Notfound } from './pages/notfound';
15 const App={()=> {
16   const name='kowsalya';
17
18   return (
19
20     <BrowserRouter>
21       <Routes>
22         <Route path="/" element={<PrivateRoute><Home></PrivateRoute>} />
23         <Route index element={<LoginForm>} />
24         <Route path="/register" element={<RegistrationForm>} />
25         <Route path="/contact" element={<PhoneNumbersForm>} />
26       </Route>
27       <Route path="/:name" element={<NameForm>} />
28       <Route path="/" element={<Notfound>} />
29     </Routes>
30   </BrowserRouter>
31
32   <div className="App">
33     </* <RegistrationForm> */>
34     </* <LoginForm> */>
35     </* <HobbiesForm> */>
36     </* <PhoneNumbersForm> */>
37     </* <ImageUploadForm> */>
38     </* <ResetForm> */>
39     </* <UserProfileForm> */>
40   </div>
```

src/components/registrationForm/registerForm.jsx  
Line 10:10: 'showPassword' is assigned a value but never used no-unused-vars  
Line 10:24: 'setShowPassword' is assigned a value but never used no-unused-vars  
Line 21:44: Unnecessary escape character: \[ no-useless-escape

webpack compiled with 1 warning

Q9. Explain the concept of route guards in React Router DOM. Implement a route guard to prevent unauthorized access to certain routes?

In React applications, **route guards** are mechanisms for controlling navigation based on certain conditions or requirements. Eg in below code if it a authorized user then Home Page rendered.



```
src > App.js > App
12 import { Home } from './pages/homePage/home';
13 import { PrivateRoute } from './privateRoute';
14 const App={()=> {
15   const name='kowsalya';
16
17   return (
18
19     <BrowserRouter>
20       <Routes>
21         <Route path="/" element={<PrivateRoute><Home></PrivateRoute>} />
22         <Route index element={<LoginForm>} />
23         <Route path="/register" element={<RegistrationForm>} />
24         <Route path="/contact" element={<PhoneNumbersForm>} />
25       </Route>
26       <Route path="/:name" element={<NameForm>} />
27     </Routes>
28   </BrowserRouter>
29
30   <div className="App">
31     </* <RegistrationForm> */>
32     </* <LoginForm> */>
33     </* <HobbiesForm> */>
34     </* <PhoneNumbersForm> */>
35     </* <ImageUploadForm> */>
36     </* <ResetForm> */>
37     </* <UserProfileForm> */>
38   </div>
```

```
src > privateRoute.jsx > PrivateRoute
1 import { Navigate } from "react-router-dom";
2 export const PrivateRoute=({ children })=>{
3   const authUser=true;
4   if (authUser) {
5     return <Navigate to="/login"
6       state={{ from: window.location.pathname }}
7       replace={true} /> ;
8   }
9   return children;
10 }
11
```

src/components/registrationForm/registerForm.jsx  
Line 10:10: 'showPassword' is assigned a value but never used no-unused-vars  
Line 10:24: 'setShowPassword' is assigned a value but never used no-unused-vars  
Line 21:44: Unnecessary escape character: \[ no-useless-escape

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Q10. How can you implement lazy loading for components in a React Router DOM application? Provide an example of setting up a route that loads its component only when needed.

