



Experiment 2

Student Name: Aaditya Anand

Branch: BE CSE

Semester: 6th

Subject Name: Full Stack Development-II

UID: 23BCS10446

Section/Group: 23BCSKRG_3A

Date of Performance: 19/01/26

Subject Code: 23CSH-309

1. Aim: To implement Single Page Application (SPA) navigation in the Eco track application using React Router, secure application routes using context-based authentication, and extend nested dashboard routing through follow-up enhancements.

2. Objective:

- To enable smooth Single Page Application (SPA) navigation in Eco Track using React Router.
- To protect application routes using context-based authentication.
- To create nested dashboard routes for better and scalable navigation.
- To manage user login and session data using React Context API.
- To build a flexible routing system that supports future dashboard features.

3. Implementation/Code:

dashboard.jsx:

```
import { logs } from '../data/logs';

const Dashboard = () => {
    const totalcarbon = logs.reduce((total, log) => total + log.carbon, 0);

    return (
        <div className="dashboard">
            <header className="dashboard-header">
                <h2 className="dashboard-title">Dashboard</h2>
                <p className="dashboard-summary">Total Carbon Footprint:</p>
                <strong>{totalcarbon} kg CO2</strong></p>
            </header>

            <section className="logs">
                <ul className="log-list">
```



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

```
{logs.map((log) => (
  <li className="log-item" key={log.id}>
    <span className="activity">{log.activity}</span>
    <span className="carbon">{log.carbon} kg CO2</span>
  </li>
))
)
</ul>
</section>
</div>
);
};

export default Dashboard;
```

login.jsx:

```
import {useAuth} from '../context/AuthContext';
import {useNavigate} from 'react-router-dom';
const LoginPage = () => useAuth();
const {setIsAuthenticated} = useAuth();
const navigate = useNavigate();
const handleLogin = () => {
  // Perform authentication logic here (e.g., API call)
  // On successful authentication:
  setIsAuthenticated(true);
  navigate('/');
  return (
    <>
      <div>
        <h2>Login Page</h2>
        <button onClick={handleLogin}>Login to ECOTRACK</button>
      </div>
    </>
  );
};

export default handleLogin;
```



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

ProtectedRoute.jsx:

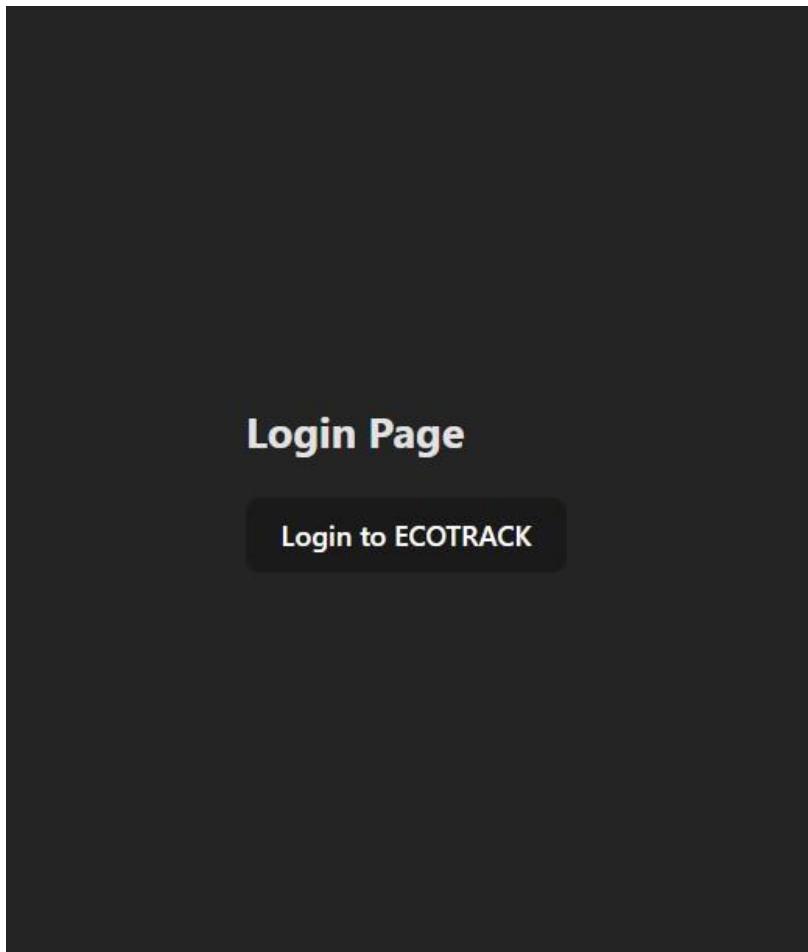
```
import { Navigate } from "react-router-dom";
import { useAuth } from
"../context/AuthContext";

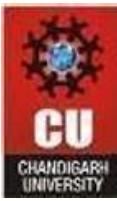
const ProtectedRoute = ({ children }) => {
  const { isAuthenticated } = useAuth();

  return isAuthenticated ? children : <Navigate to="/login" />;
};

export default ProtectedRoute;
```

4. Output:





DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

5. Learning Outcome:

- To understand how to create Single Page Applications using React Router for smooth navigation.
- To learn how to protect routes using Context API-based authentication.
- To practice using nested routing for organized dashboard layouts.
- To develop skills in managing global user data and sessions in React.
- To learn how to build scalable and maintainable routing systems for real-world projects.