DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CHANDIGARH UNIVERSITY

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Report File FULL STACK

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Branch: BE-AIT-CSE

Section/Group: 23AIT-KRG-G2

Semester: 6th

Subject Code: 23-CSH-382

Subject Name: Full Stack

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

Objectives

After completing this experiment and its follow-up tasks, the student will be able to:

1. Configure client-side routing in a React application using React Router
2. Implement SPA navigation without full page reloads
3. Design and apply protected routes using route-guard patterns
4. Manage shared authentication state using React Context API
5. Implement nested routing to build dashboard-style layouts
6. Extend existing nested routes by adding new dashboard sections
7. Implement logout functionality by updating shared context state
8. Analyze route access behavior and explain redirection logic
9. Understand the role of Context API in shared state management and its comparison with Redux at an introductory level

Code:

Data

```
const logs = [
  { id: 1, activity: "Car Travel", carbon: 4 },
  { id: 2, activity: "Electricity Usage", carbon: 6 },
  { id: 3, activity: "Cycling", carbon: 0 },
  { id: 4, activity: "Public Transport", carbon: 12 },
  { id: 5, activity: "Meat Consumption", carbon: 5 },
  { id: 6, activity: "Plant-based Meal", carbon: 2 },
  { id: 7, activity: "Air Travel", carbon: 1 },
];
```

```
export default logs;
```

AuthContext.jsx

```
import { createContext, useContext, useState } from "react";

const AuthContext = createContext(null);

export const AuthProvider = ({children}) => {
    const [isAuthenticated, setIsAuthenticated] = useState(false);

    return (
        <AuthContext.Provider value = {{isAuthenticated, setIsAuthenticated}}>
            {children}
        </AuthContext.Provider>
    )
}

export const useAuth = () => useContext(AuthContext);
```

DashboardAnalytics.jsx

```
const DashboardAnalytics = () => {
    return (
        <h3 style={{color: "blue"}}>This is a Analysis</h3>
    )
}

export default DashboardAnalytics;
```

DashboardLayout.jsx

```
import { Link, Outlet } from "react-router-dom";
import Logout from "./Logout";

const DashboardLayout = () => {
    return (
        <div style={{backgroundColor: "teal", padding: "20px"}}>
             <hr />
            <h2 style={{color: "#f8950bff"}}>Dashboard</h2>

            <nav>
                <Link style={{paddingRight: "10px", color: "#00fff0"}} to =
"settings">Settings</Link>
                <Link style={{padding: "10px", color: "#00fff0"}}to =
"summary">Summmary</Link>
                <Link style={{padding: "10px", color: "#00fff0"}} to =
"analytics">Analytics</Link>
            </nav>



            <Outlet />
```

```
            <Logout />
        </div>

    )
}

export default DashboardLayout;
```

DashboardSettings.jsx

```
const DashboardSettings = () => {
    return (
        <h3 style={{color: "blue"}}>These are the settings</h3>
    )
}

export default DashboardSettings;
```

DashboardSummary.jsx

```
const DashboardSummary = () => {
    return (
        <h3 style={{color: "skyblue"}}>This is a Summary</h3>
    )
}

export default DashboardSummary;
```

Login.jsx

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

const Login = () => {
    const { setIsAuthenticated } = useAuth();
    const navigate = useNavigate();

    const handleLogin = () => {
        setIsAuthenticated(true);
        navigate("/");
    };

    return (
        <div style={{ backgroundColor: "black", padding: "20px" }}>
            <hr />
            <h2 style={{ color: "#f8950bff" }}>Login</h2>
            <button onClick={handleLogin}
                style={{
                    background: "linear-gradient(135deg, #3ce355, #5512c1)",
                    color: "white",
                    border: "none",
                    padding: "12px 26px",
                    borderRadius: "30px",
```

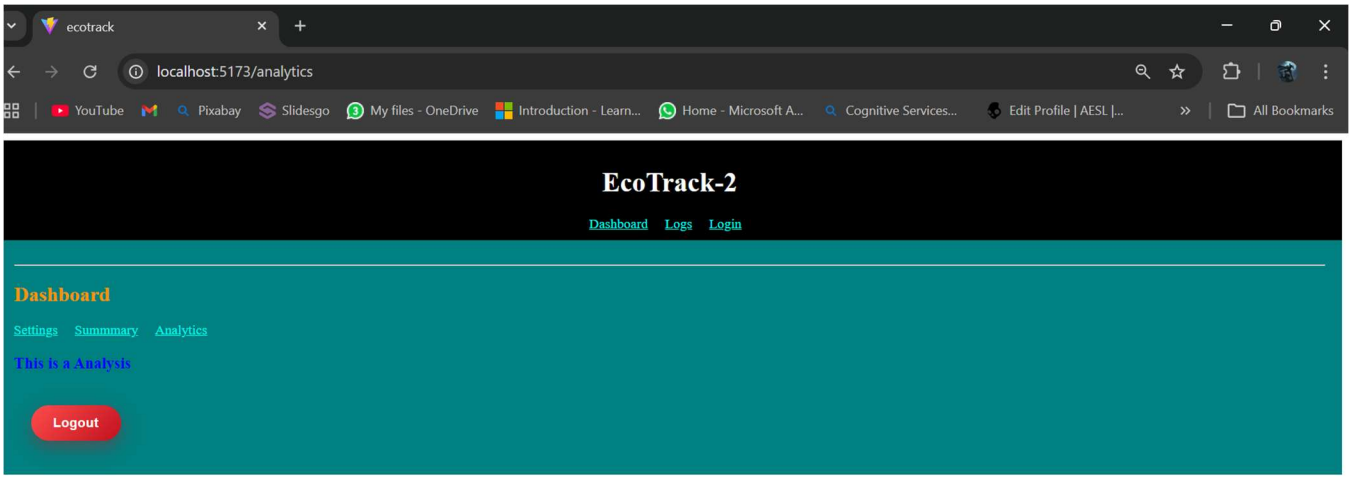
```
                    fontSize: "15px",
                    fontWeight: "600",
                    letterSpacing: "0.5px",
                    cursor: "pointer",
                    boxShadow: "0 8px 20px rgba(18, 181, 193, 0.4)",
                    transition: "all 0.3s ease"
                }}
            >Login</button>
        </div>
    );
};

export default Login;
```

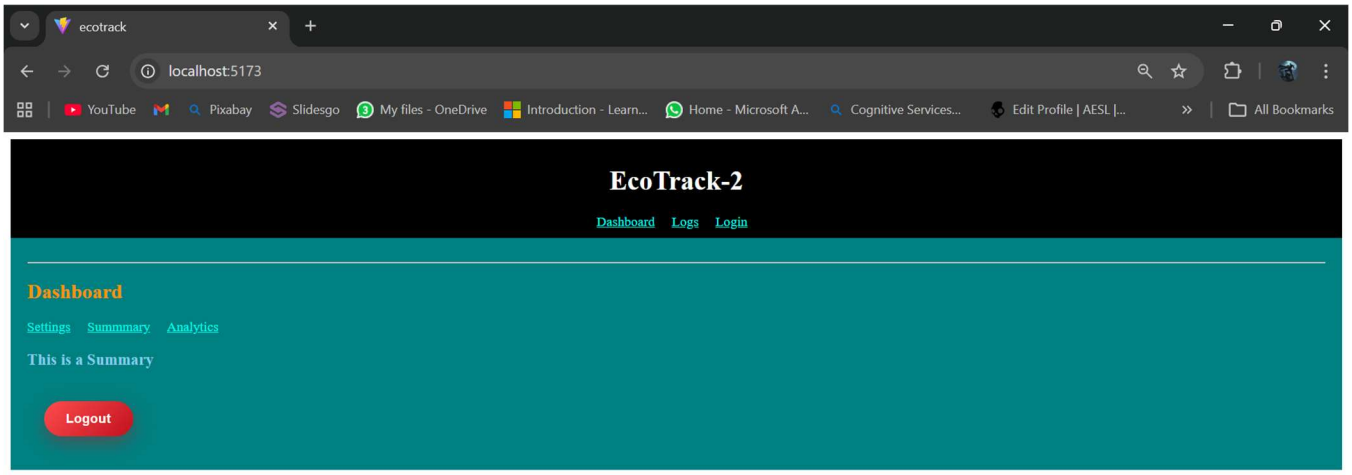
Logout.jsx

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

const Logout = () => {
    const { logout } = useAuth();
    const navigate = useNavigate();

    const handleLogout = () => {

        navigate("/login");
        logout(true);
    };

    return (
        <div style={{ backgroundColor: "teal", padding: "20px" }}>
            <button
                onClick={handleLogout}
                style={{
                    background: "linear-gradient(135deg, #ff4d4d, #c1121f)",
                    color: "white",
                    border: "none",
                    padding: "12px 26px",
                    borderRadius: "30px",
                    fontSize: "15px",
                    fontWeight: "600",
                    letterSpacing: "0.5px",
                    cursor: "pointer",
                    boxShadow: "0 8px 20px rgba(193, 18, 31, 0.4)",
                    transition: "all 0.3s ease"
                }}
            >
                Logout
            </button>
        </div>
    );
```

```
};

export default Logout;
```

Output:





Learning Outcome:

- Learn't how to build reusable UI using React components
- Practical Application of map(), filter(), and reduce() functions.
- Learn't how to manage and display data dynamically in React
- Learn't the basics of UI for dashboard design with CSS
- Understanding of environmental impact awareness through technology.