DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 1

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Semester: 6th
Date of Performance: 08/01/26
Subject Name: Full Stack - II
Subject Code: 23CSH-309

Aim: To develop a web-based **Carbon Footprint Monitoring Dashboard** that tracks daily activities, calculates total carbon emissions, and categorizes data to help users identify high-emission behaviors and promote environmental awareness.

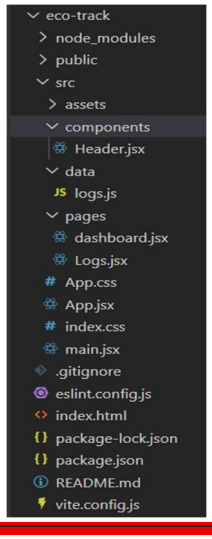
Objective:

- To calculate the total carbon footprint using efficient data aggregation techniques.
- To identify and highlight high carbon-emission activities for better decision-making.
- To present activity-wise emission data in a clear and organized format.
- To apply visual indicators (color-based segregation) for quick emission analysis.
- To implement a clean, modular React architecture using functional components.
- To strengthen understanding of JavaScript array methods like map(), filter(), and reduce() in a real-world use case.

Input/Apparatus Used:

- Programming Language: JavaScript (ES6+)
- Framework / Library: React (Functional Components)
- Build Tool: Vite
- Code Editor: Visual Studio Code
- Web Browser: Google Chrome

Files Structure



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File Used

1.logs.js

eco-track > src > data > JS logs.js > ...

```
export const logs = [
  { id: 1, activity: "Car Travel", carbon: 4 },
  { id: 2, activity: "Electricity Usage", carbon: 6 },
  { id: 3, activity: "Cycling", carbon: 0 },
];
```

2.Header.jsx

```
const Header = ({title}) => {
    return(
        <header style={{padding : "0.5rem",backgroundColor:"#27ae60",color:"white"}}>
        <h1>{title}</h1>
        </header>
    );
};

export default Header;
```

3.dashboard.jsx

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

const Dashboard = () => {

    const calc = logs.reduce((sum,log)=>{
    sum= sum+log.carbon;

},0);



return(
    <div>
        <h2>Dashbaord</h2>
        <p>Total carbon Footprint : {calc} kgs</p>

        <ul>
            {logs.map(log => (
                <li key={log.id}>
                    {log.activity} = {log.carbon} kg
                </li>
            ))}
        </ul>
    </div>
)
};

export default Dashboard;
```

4. Logs.jsx

```jsx
import { logs } from "../data/logs";

const Logs = () => {
    const highCarbon = logs.filter(
        log => log.carbon >= 4
    );
    const lowCarbon = logs.filter(
        log=>log.carbon < 4
    );

    return (
        <div>
            <h2>Daily Logs</h2>
            <ul>
                High Carbon:
                {highCarbon.map(log => (
                    <li key={log.id} style={{backgroundColor:"red"}}>
                        {log.activity} = {log.carbon} Kg
                    </li>
                ))}
            </ul>
            <ul >
                Low Carbon:
                {lowCarbon.map(log => (
                    <li key={log.id} style={{backgroundColor:"green"}}>
                        {log.activity} = {log.carbon} Kg
                    </li>
                ))}
            </ul>


        </div>
    );
};

export default Logs;
```

5.App.jsx

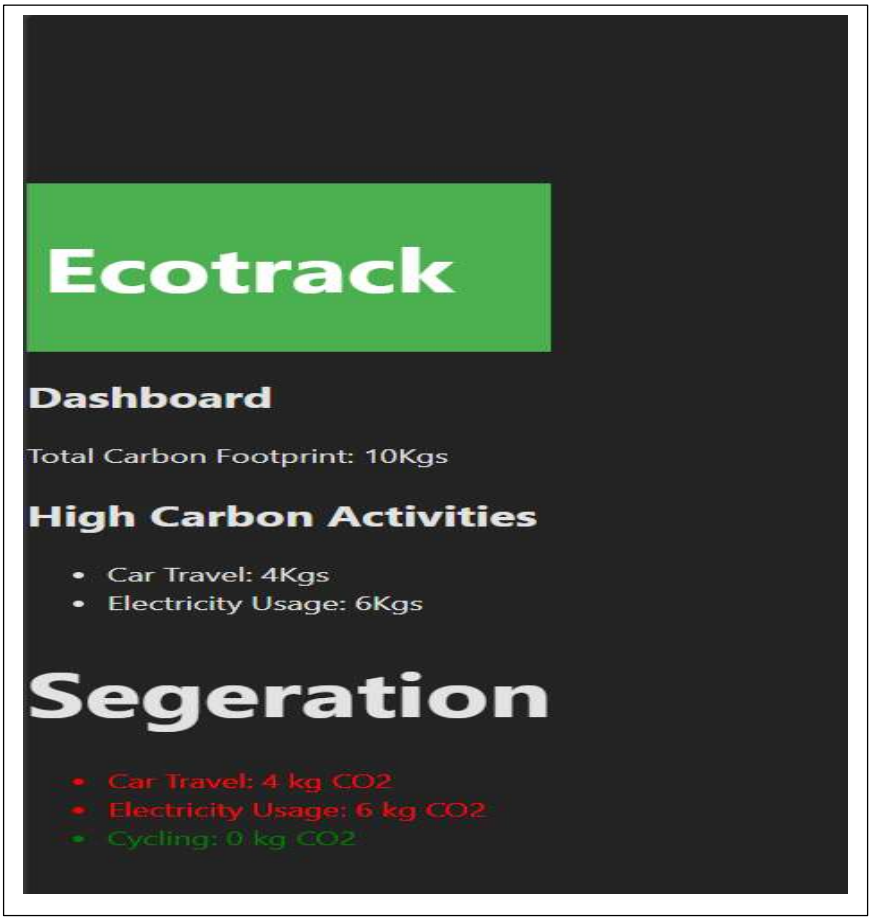
```jsx
import Header from "./components/Header";
import Dashboard from "./pages/dashboard";
import Logs from "./pages/Logs";

const App = () =>{
return(
  <>
  <Header title = "Ecotrack - experiment 1"/>
  <main style = {{padding: "1rem"}}>
    <Dashboard/>
    <Logs/>
  </main>
  </>
)

}

export default App;
```

Output



Learning Outcomes

- Built a **React-based web application** using functional components and clean component architecture.
- Applied **JavaScript array methods** (map, filter, reduce) to process and analyze real-world data.
- Implemented **conditional rendering and dynamic styling** for better UI clarity.
- Gained hands-on experience with **modern development tools** like Vite and ES6+ JavaScript.