



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 1

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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

```
└── eco-track
    ├── node_modules
    └── public
        └── index.html
    └── src
        ├── assets
        │   └── images
        ├── components
        │   ├── Header.jsx
        │   └── logs.js
        ├── data
        │   └── logs.json
        ├── pages
        │   ├── dashboard.jsx
        │   └── Logs.jsx
        ├── App.css
        ├── App.jsx
        ├── index.css
        └── main.jsx
        └── .gitignore
        └── eslint.config.js
        └── package-lock.json
        └── package.json
        └── README.md
        └── vite.config.js
```

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File Used

1.logs.js

```
eco-track > src > data > js logs.js > ...
1  export const logs = [
2    { id: 1, activity: "Car Travel", carbon: 4 },
3    { id: 2, activity: "Electricity Usage", carbon: 6 },
4    { id: 3, activity: "Cycling", carbon: 0 },
5  ];
```

2.Header.jsx

```
1  const Header = ({title}) => {
2    return(
3      <header style={{padding : "0.5rem",backgroundColor:"#27ae60",color:"white"}>
4        <h1>{title}</h1>
5        </header>
6      );
7    );
8  }
9  export default Header;
```

3.dashboard.jsx

```
1  import {logs} from "../data/logs";
2
3  const Dashboard = () => {
4
5    const calc = logs.reduce((sum,log)=>{
6      sum= sum+log.carbon;
7
8    },0);
9
10
11  return(
12    <div>
13      <h2>Dashbaord</h2>
14      <p>Total carbon Footprint : {calc} kgs</p>
15
16      <ul>
17        {logs.map(log => (
18          <li key={log.id}>
19            | {log.activity} = {log.carbon} kg
20          </li>
21        ))
22      </ul>
23    </div>
24  );
25
26  export default Dashboard;
```

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4.Logs.jsx

```
1 import { logs } from "../data/logs";
2
3 const Logs = () => {
4     const highCarbon = logs.filter(
5         log => log.carbon >= 4
6     );
7     const lowCarbon = logs.filter(
8         log=>log.carbon < 4
9     );
10
11     return (
12         <div>
13             <h2>Daily Logs</h2>
14             <ul>
15                 High Carbon:
16                     {highCarbon.map(log => (
17                         <li key={log.id} style={{backgroundColor:"red"}}>
18                             {log.activity} = {log.carbon} Kg
19                         </li>
20                     ))}
21             </ul>
22             <ul >
23                 Low Carbon:
24                     {lowCarbon.map(log => (
25                         <li key={log.id} style={{backgroundColor:"green"}}>
26                             {log.activity} = {log.carbon} Kg
27                         </li>
28                     ))}
29             </ul>
30
31         </div>
32     );
33 };
34
35 export default Logs;
```

5.App.jsx

```
1 import Header from "./components/Header";
2 import Dashboard from "./pages/dashboard";
3 import Logs from "./pages/Logs";
4
5 const App = () =>{
6     return(
7         <>
8             <Header title = "Ecotrack - experiment 1"/>
9             <main style = {{padding: "1rem"}}>
10                 <Dashboard/>
11                 <Logs/>
12             </main>
13         </>
14     )
15 }
16
17
18 export default App;
```



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Output

The screenshot shows a dark-themed web application interface. At the top, a green header bar contains the white text "Ecotrack". Below this, a black section labeled "Dashboard" in bold white text displays the message "Total Carbon Footprint: 10Kgs". Underneath, a section titled "High Carbon Activities" lists two items: "Car Travel: 4Kgs" and "Electricity Usage: 6Kgs", both in white text. Further down, another section titled "Segeration" lists three items: "Car Travel: 4 kg CO2" (in red), "Electricity Usage: 6 kg CO2" (in red), and "Cycling: 0 kg CO2" (in green). The entire interface is framed by a thin white border.

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.