



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 1

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Subject Name: Full Stack Development

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Section/Group: KRG 3A

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Aim:

To design and implement the foundational frontend architecture of the EcoTrack application using modern React practices, Vite tooling, and ES6+ JavaScript features.

Objective:

- To set up a React project using Vite with proper project structure
- To understand component-based architecture in React
- To apply ES6 array methods (map, filter, reduce) for data-driven UI rendering
- To separate concerns using components, pages, and data modules

Implementation/Code:

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 },
];
```

Dashboard.jsx:

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

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

  const highCarbonActivities = logs.filter(
    log => log.carbon > 4
  );
  return (
    <div>
      <h2>Dashboard</h2>
```

```

<p>Total Carbon Footprint: {calculateTotalCarbon} Kg</p>

<ul>
  {logs.map((log) => (
    <li key={log.id}>
      {log.activity}: {log.carbon} Kg
    </li>
  )))
</ul>
<h3>High Carbon Activities (&gt; 4 Kg)</h3>
<ul>
  {highCarbonActivities.map(log => (
    <li key={log.id}>
      {log.activity}: {log.carbon} Kg
    </li>
  )))
</ul>
</div>
);
};

export default Dashboard;

```

Output:

The screenshot shows a mobile-style dashboard with a green header and black background. The header contains the title "EcoTrack - Experiment 1". Below the header, the word "Dashboard" is displayed in a large, bold, white font. Underneath "Dashboard", the text "Total Carbon Footprint: 10 Kg" is shown in white. A bulleted list follows, detailing carbon emissions from different activities: "Car Travel: 4 Kg", "Electricity Usage: 6 Kg", and "Cycling: 0 Kg". At the bottom, a section titled "High Carbon Activities (> 4 Kg)" lists "Electricity Usage: 6 Kg".

Learning Outcome:

- Set up a modern React application using Vite and understand the advantages of fast build tools and optimized project scaffolding.
- Design applications using component-based architecture, enabling better code reusability, readability, and separation of concerns.
- Apply ES6 JavaScript features such as map(), filter(), and reduce() to process data and dynamically render UI components.
- Organize project structure effectively by separating data, components, and pages for scalable frontend development.
- Analyze and visualize data in a React application, demonstrating how state-independent data modules can drive UI logic and presentation.