



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 1

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Subject Name: Full Stack Development

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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 (> 4 Kg)</h3>
<ul>
  {highCarbonActivities.map(log => (
    <li key={log.id}>
      {log.activity}: {log.carbon} Kg
    </li>
  ))}
</ul>
</div>

);
};
export default Dashboard;

```

Output:

EcoTrack - Experiment 1

Dashboard

Total Carbon Footprint: 10 Kg

- Car Travel: 4 Kg
- Electricity Usage: 6 Kg
- Cycling: 0 Kg

High Carbon Activities (> 4 Kg)

- 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.