Experiment 1

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1. **Aim:**
   Modern React Foundations – EcoTrack

2. **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

3. **Implementation/Code:**

Header.jsx:

```jsx
const Header = ({ title }) => {
  return (
    <header
      style={{
        padding: "1rem",
        backgroundColor: "#27ae60",
        textAlign: "center",
      }}
    >
      <h1>{title}</h1>
    </header>
  );
};

export default Header;
```

Dashboard.jsx:

```jsx
const Dashboard = ({ prop }) => {
  const Total = prop.reduce((acc, x) => {
    return acc + x.carbon;
  }, 0);

  return (
    <div>
      <p>Total Carbon Footprint: {Total} Kg</p>
      <ul>
        {prop.map((log) => (
          <li key={log.id}>
            {log.activity} = {log.carbon} KG
          </li>
        ))}
      </ul>
    </div>
  );
};

export default Dashboard;
```

Log.jsx:

```jsx
const Logs = ({ logs }) => {
  const filteredArray = logs.filter((log) => {
    if (log.carbon >= 4) {
      return log;
    }
  });
  const Array = logs.filter((log) => {
    if (log.carbon < 4) {
      return log;
    }
  });
  return (
    <ul>
      <h2>High Carbon Activity</h2>
      {filteredArray.map((log) => (
        <li style={{ color: "red" }} key={log.id}>
          {log.activity} = {log.carbon} Kg
        </li>
      ))}
      <h2>Low Carbon Activity</h2>
      {Array.map((log) => (
        <li style={{ color: "green" }} key={log.id}>
          {log.activity} = {log.carbon} Kg
        </li>
      ))}
    </ul>
  );
};

export default Logs;
```

App.jsx:

```jsx
import Dashboard from './pages/dashboard';
import logs from './data/logs';
import Logs from './pages/Logs';


function App() {


  return (
    <div>
      <Dashboard prop={logs}/>
      <Logs logs = {logs}/>
    </div>
  )
}

export default App
```

4. Output:

Total Carbon Footprint: 10 Kg

- Car Travel = 4 KG
- Electricity Usage = 6 KG
- Cycling = 0 KG

High Carbon Activity

- Car Travel = 4 Kg
- Electricity Usage = 6 Kg

Low Carbon Activity

- Cycling = 0 Kg

5. Learning Outcomes:

- Analyze Project Structure:

  Deduce the purpose and architecture of a React application by examining its file and directory organization.

- Component-Based Architecture:

  Understand the distinction between page-level components (pages/) and reusable UI components (components/).

- React Router (or equivalent):

  (Assuming App.jsx handles routing) Understand how to implement client-side routing to create a single-page application (SPA) feel.

- Data Handling:

  Learn how static data can be imported and utilized within React components (as seen with data/logs.js).